SPECIAL EDUCATION RESEARCH GRANTS

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REQUEST FOR APPLICATIONS

INSTITUTE OF EDUCATION SCIENCES
http://ies.ed.gov

APPLICATION DEADLINE DATE: June 26, 2008 and October 2, 2008

PART I GENERAL OVERVIEW

1. REQUEST FOR APPLICATIONS

In this announcement, the Institute of Education Sciences (Institute) describes the research grant programs that are funded through its National Center for Special Education Research. Separate announcements are available on the Institute's website that pertain to the postdoctoral research training program funded through the National Center for Special Education Research and to the discretionary grant competitions and research training programs funded through the Institute's National Center for Education Research (http://ncer.ed.gov).

The Institute invites applications for research projects that will contribute to its Special Education Research Grants Programs on (1) Early Intervention and Early Childhood Special Education; (2) Reading, Writing, and Language Development; (3) Mathematics and Science Education; (4) Social and Behavioral Outcomes to Support Learning; (5) Transition Outcomes for Special Education Secondary Students; (6) Cognition and Student Learning in Special Education; (7) Teacher Quality; (8) Related Services; (9) Systemic Interventions and Policies for Special Education; and (10) Autism Spectrum Disorders. For the FY 2009 competition, the Institute will consider only applications that meet the requirements outlined below under Part II Research Grant Topics and Part III Requirements of the Proposed Research.

For the purpose of this Request for Applications (RFA), a student with disabilities is defined in Public Law 108-446, the Individuals with Disabilities Education Improvement Act of 2004 (IDEA), as a child "(i) with mental retardation, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance (referred to in this title as 'emotional disturbance'), orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities; and (ii) who, by reason thereof, needs special education and related services" (Part A, Sec. 602). An infant or toddler with a disability is also defined in IDEA as, "an individual under 3 years of age who needs early intervention services because the individual (i) is experiencing developmental delays, as measured by appropriate diagnostic instruments and procedures in 1 or more of the areas of cognitive development, physical development, communication development, social or emotional development, and adaptive development; or (ii) has a diagnosed physical or mental condition that has a high probability of resulting in developmental delay" (Part C, Sec. 632).

2. OVERVIEW OF THE INSTITUTE'S RESEARCH PROGRAMS

The Institute's over-arching priority is research that contributes to improved academic achievement for all students, and particularly for those whose education prospects are hindered by inadequate education services and conditions associated with poverty, race/ethnicity, limited English proficiency, disability, and family circumstance.

With academic achievement as the major priority, the Institute focuses on outcomes that differ by periods of education. In the infancy, toddler, and preschool period, the outcomes of interest are those that enhance readiness for schooling (e.g., language skills), and also developmental outcomes for infants and toddlers with disabilities. In kindergarten through Grade 12, the core academic outcomes of reading and writing (including reading and writing in the disciplines), mathematics, and science are emphasized, as well as the behaviors and social skills that support learning in school and successful transitions to employment, independent living, and post-secondary education. At the post-secondary level, the focus is on enrollment in and completion of programs that prepare students for successful careers and lives. The same outcomes are emphasized for students with disabilities from grades k-12, and include the functional outcomes that improve educational and transitional results. The acquisition of basic skills by adults with low levels of education is also a priority for the Institute.

In conducting research on academic outcomes, the Institute concentrates on conditions within the control of the education system, with the aim of identifying, developing, and validating effective education programs,

practices, policies, and approaches as well as understanding the factors that influence variation in their effectiveness, such as implementation. Conditions that are of highest priority to the Institute are in the areas of curriculum, instruction, assessment (including the identification of students with or at risk for disabilities), the quality of the education workforce, and the systems and policies that affect these conditions and their interrelationships (for example, accountability systems, delivery mechanisms including technology, and policies that support the ability of parents to improve educational results for their children through such means as choice of education services and provision of school-related learning opportunities in the home).

In this section, the Institute describes the overall framework for its research grant programs. Specific information on the research topics described in this announcement may be found in the sections pertaining to each special education research program:

- Early Intervention and Early Childhood Special Education
- Reading, Writing, and Language Development
- Mathematics and Science Education
- Social and Behavioral Outcomes to Support Learning
- Transition Outcomes for Special Education Secondary Students
- Cognition and Student Learning in Special Education
- Teacher Quality
- Related Services
- Systemic Interventions and Policies for Special Education
- Autism Spectrum Disorders

The Institute addresses the educational needs of typically developing students through its Education Research programs and the needs of students with disabilities through its Special Education Research programs. Both the Education Research and the Special Education Research programs are organized by outcomes (e.g., reading, mathematics), type of education condition (e.g., curriculum and instruction; teacher quality; administration, systems, and policy), grade level, and research goals.

A. Outcomes

The Institute's research programs focus on improvement of the following education outcomes: (a) readiness for schooling (pre-reading, pre-writing, early mathematics and science knowledge and skills, and social development); (b) academic outcomes in reading, writing, mathematics, and science; (c) student behavior and social interactions within schools that affect the learning of academic content; (d) academic and functional skills that support independent living for students with disabilities; and (e) educational attainment (e.g., high school graduation).

B. Conditions

In general, each of the Institute's research grants programs focuses on a particular type of condition (e.g., curriculum and instruction) that may affect one or more of the outcomes listed previously (e.g., reading). The Institute's research programs are listed below according to the primary condition that is the focus of the program.

a. <u>Curriculum and instruction</u>

Several of the Institute's programs focus on the development and evaluation of curricula and instructional approaches. These programs include: (a) Early Intervention and Early Childhood Special Education; (b) Reading, Writing, and Language Development; (c) Mathematics and Science Education; (d) Social and Behavioral Outcomes to Support Learning; (e) Transition Outcomes for Special Education Secondary Students; (f) Cognition and Student Learning in Special Education; (g) Related Services; and (h) Autism Spectrum Disorders.

b. Quality of the education workforce

A second condition that affects student learning and achievement is the quality of teachers and education leaders (e.g., principals, superintendents). The Institute funds research that includes approaches, practices, and programs for in-service training of teachers or other service providers to deliver instruction or services. Institute programs that focus on the quality of the education workforce include: (a) Early Intervention and Early Childhood Special Education, (b) Teacher Quality, and (c) Related Services.

c. Administration, systems, and policy

A third approach to improving student outcomes is to identify systemic changes in the ways in which schools and districts are led, organized, managed, and operated that may be directly or indirectly linked to student outcomes. The Institute takes this approach in programs including: (a) Early Intervention and Early Childhood Special Education and (b) Systemic Interventions and Policies for Special Education.

Applicants should be aware that some of the Institute's programs cover multiple conditions. For example, the following programs cover multiple conditions: (a) Early Intervention and Early Childhood Special Education and (b) Related Services.

C. Grade Levels

The Institute's research programs also specify the ages or grade levels covered in the research program. The specific grades vary across research programs and within each research program, and grades may vary across the research goals. In general, the Institute supports research for (a) pre-kindergarten and kindergarten, (b) elementary school, (c) middle school, (d) high school, (e) post-secondary education, (f) vocational education, and (g) adult education. In addition, the Institute supports research on infants and toddlers with disabilities.

D. Research Goals

The Institute has established five research goals for its research programs. Within each research program one or more of the goals may apply: (a) Goal One – identify programs, practices, and policies that may have an impact on student outcomes, and factors that may mediate or moderate the effects of these programs, practices, and policies; (b) Goal Two – develop programs, practices, and policies that are theoretically and empirically based; (c) Goal Three - establish the efficacy of fully developed programs, practices, and policies; (d) Goal Four – evaluate the impact of programs, practices, and policies implemented at scale; and (e) Goal Five – develop and/or validate data and measurement systems and tools.

For a list of the Institute's FY 2009 research grant topics, including grant competitions through the Institute's National Center for Special Education Research and National Center for Education Research, please see Table 1 below. Funding announcements for these competitions may be downloaded from the Institute's website at http://ies.ed.gov.

Table 1: FY 2009 Research and Training Grant Topics:

National Center for Special Education Research

1. Research Grant Topics
- Early Intervention and Early Childhood Special Education
- Reading, Writing, and Language Development
- Mathematics and Science Education
- Social and Behavioral Outcomes to Support Learning
- Transition Outcomes for Special Education Secondary Students
- Cognition and Student Learning in Special Education
- Teacher Quality
- Related Services
- Systemic Interventions and Policies for Special Education
- Autism Spectrum Disorders

2. Research Training Grant Topics
- Postdoctoral Special Education Research Training

National Center for Education Research

1. Research Grant Topics
- Reading and Writing
- Mathematics and Science Education
- Cognition and Student Learning
- Teacher Quality – Reading and Writing
- Teacher Quality – Mathematics and Science Education
- Social and Behavioral Context for Academic Learning
- Education Leadership
- Education Policy, Finance, and Systems
- Early Childhood Programs and Policies
- Middle and High School Reform
- Interventions for Struggling Adolescent and Adult Readers and Writers
- Postsecondary Education
- Education Technology

2. Research Training Grant Topics
- Postdoctoral Research Training Program
- Predoctoral Research Training Program

3. National Research and Development Center Topics
- Center on Teacher Effectiveness
- Center on Rural Education
- Center on Turning Around Chronically Low Achieving Schools

4. Statistical and Research Methodology in Education

5. Evaluation of State and Local Education Programs and Policies

PART II RESEARCH GRANT TOPICS

3. NEW THIS YEAR

Applicants familiar with the prior year's Request for Applicants are strongly encouraged to read the following changes made to the FY 2009 research grant topics.

For FY 2009, the Institute's National Center for Special Education Research is accepting applications for research grants under 10 topics. This year, there are *two application deadlines for each of these 10 topics*: June 26, 2008, and October 2, 2008. In this section, the Institute describes the 10 research grant topics.

Applicants will find that some topics that have been offered in previous years (e.g., Assessment for Accountability, Response to Intervention, Individualized Education Programs and Individualized Family Service Plans) are not offered as separate topics. *However, applicants may still propose projects in these areas*. For example, under the new Systemic Interventions and Policies for Special Education topic, applicants may propose to examine systemic interventions for grades kindergarten through 12 that previously could have been included under the Assessment for Accountability, Response to Intervention, and Individualized Education Programs and Individualized Family Service Plans topics. By creating one broad systems and policies topic, the Institute intends to stimulate research on a wide array of systemic interventions and policies that were not eligible under these targeted topics. Applicants interested in studying systems and policies in early childhood education must apply to the Early Intervention and Early Childhood Special Education topic.

In addition, the Serious Behavior Disorders program has been changed to Social and Behavioral Outcomes to Support Learning. The Institute has expanded the previous Serious Behavior Disorders topic to now include interventions and assessments that address a broader range of social, emotional, and behavioral outcomes and to explicitly allow applications that address these outcomes for students across the spectrum of disability categories. In addition, the topic has been restricted to those programs that address students in grades K-12. Applications that address social and behavioral outcomes for infants, toddlers, or preschoolers with disabilities must apply to the Early Intervention and Early Childhood Special Education program. Finally, applications that solely address academic outcomes with a population of students with behavior disorders (e.g., emotional disturbance), must apply to the appropriate content area competition (e.g., Reading, Writing, and Language Development).

Finally, the Institute has added a new topic – Cognition and Student Learning in Special Education – to foster research that applies advances in the cognitive sciences to improving outcomes for students with disabilities.

4. EARLY INTERVENTION AND EARLY CHILDHOOD SPECIAL EDUCATION

Program Officer: Dr. Kristen Lauer (202-219-0377; Kristen.Lauer@ed.gov)

A. Purpose

Through its research program on Early Intervention and Early Childhood Special Education (Early Intervention), the Institute intends to support research that contributes to the improvement of developmental outcomes and school readiness of infants, toddlers, and young children (from birth through preschool) with disabilities or at-risk for disabilities by: (1) identifying interventions, curriculum, and instructional practices that are associated with better developmental outcomes and school readiness, as well as mediators and moderators of the relations between these practices and student outcomes; (2) developing new, or modifying existing, interventions, programs, curricula, and professional development training to improve developmental outcomes and school readiness; (3) establishing the efficacy of existing interventions, programs, curricula, and professional development programs to improve developmental outcomes and school readiness; (4) providing evidence on the effectiveness of interventions, programs, curricula, or professional development programs that are implemented at scale and designed to improve

developmental outcomes and school readiness; and (5) developing and/or validating assessment tools that can be used by practitioners to assess infants, toddlers, and young children with disabilities or at risk for disabilities, assess the performance of early intervention and early childhood special education practitioners, or assess systemic practices or policies. Developmental outcomes that may be addressed through this program are cognitive, linguistic, social, emotional, adaptive, and physical outcomes.

The long-term outcome of this program will be an array of tools and strategies (e.g., assessment tools, curricula, programs, services, interventions) that have been documented to be effective for improving developmental outcomes or school readiness of infants, toddlers, and young children with disabilities or at risk for disabilities.

B. Background

Almost one million infants, toddlers, and young children (birth through five years old) receive early intervention or early childhood special education services under IDEA (U.S. Department of Education, 2005). Relatively little rigorous research, however, has been conducted to evaluate the impact of early interventions or early childhood special education services for improving child outcomes (National Research Council, 2000).

The Institute intends for its Early Intervention research program to support research on the development and evaluation of interventions, programs, and curricula that are intended to improve developmental outcomes (cognitive, linguistic, social, emotional, adaptive, and physical outcomes) and school readiness for infants, toddlers, and young children with disabilities or at risk for disabilities.

The Institute encourages researchers to develop new interventions, modify existing interventions, or rigorously evaluate fully developed interventions. Interventions appropriate for research under this program are interventions for infants, toddlers, or young children with high- or low-incidence disabilities that are delivered to the child by early intervention specialists, teachers, or related service providers. For example, an applicant might propose to develop a home-based intervention designed to be delivered by speech language pathologists and intended to improve the articulation, expressive vocabulary, and word retrieval skills of toddlers with Down Syndrome or Prader-Willi Syndrome. Interventions may also include training provided to parents to enable them to deliver interventions to their child.

Also appropriate under this topic are applications to develop or evaluate professional development programs intended to improve services to infants, toddlers, or young children with high- or low-incidence disabilities and thereby improve developmental outcomes or school readiness. Professional development programs may be for early intervention specialists, teachers, or related service providers. For example, an applicant might propose to evaluate a professional development training program for occupational therapists to improve self-care behaviors of toddlers with visual impairments.

Under the Early Intervention topic, researchers may propose to develop or evaluate systemic interventions intended to directly or indirectly improve developmental outcomes or school readiness of infants, toddlers, or young children with high- or low-incidence disabilities or at risk for disabilities. Examples of systemic interventions include (a) programs to improve the development and implementation of Individualized Family Service Plans or preschoolers' Individualized Education Programs; (b) programs or procedures intended to better coordinate service delivery systems; (c) Response to Intervention approaches; and (d) interventions intended to improve collaboration among families, service providers, and educators and promote smooth transitions as children move from Early Intervention services to preschool settings.

Finally, the Institute is interested in proposals to develop and/or validate instruments that can be used by practitioners to identify or monitor infants, toddlers, and young children with disabilities or at risk for a disability. For example, researchers may propose to develop and/or validate outcome measures that can be used not only for measuring infants', toddlers', and young children's development and school readiness, but

also for determining program areas that need improvement and for providing data for Federal accountability purposes.

C. Specific Requirements

For the FY 2009 Early Intervention topic, applicants must submit under *either* Goal One *or* Goal Two *or* Goal Three *or* Goal Four *or* Goal Five. More details on the requirements for each goal are listed in the section on General Requirements of the Proposed Research. In this section, specific requirements that apply to applications to the Early Intervention topic are described.

Under the Early Intervention program, applications must address *interventions* designed to improve developmental outcomes (cognitive, linguistic, social, emotional, adaptive, and physical) of infants, toddlers, and young children (from birth through preschool) with disabilities or at risk for disabilities, or *assessments* that can be used by practitioners to screen, diagnose, monitor progress, or evaluate outcomes for infants, toddlers, and young children with disabilities or at risk for disabilities or to evaluate the quality of early intervention/early childhood special education systems and performance of early intervention and early childhood special education practitioners.

- Interventions may be school-based interventions or occur in natural settings (e.g., home-based, child care settings, family focused interventions) or systemic interventions.
- Interventions designed to provide direct services to infants, toddlers, or young children may be delivered by early intervention specialists, teachers, related service providers (e.g., speech-language pathologists, physical therapists), or parents. Professional development interventions may target professionals or paraprofessionals who provide services to infants, toddlers, or young children with disabilities or at risk for disabilities.
- Under Goal Three and Goal Four, evaluations of professional development programs must include measures of the behaviors of the service providers for whom the professional development is intended (e.g., teachers, early intervention specialists, related service providers) as well as measures of the child outcomes that are intended to be addressed by improving the services delivered by the provider.
- Under Goal Three and Goal Four, evaluations of systemic interventions must include measures of the proximal outcomes that are intended to improve (e.g., quality, implementation, and monitoring of Individualized Family Service Plans) as well as measures of the child outcomes that are intended to be indirectly addressed by improving the system.
- Under Goal Five, assessments of the performance of early intervention and early childhood special education practitioners must be validated against child outcomes. Assessments of the quality of early intervention/early childhood special education programs and systems must be validated against child outcomes.
- Interventions and assessments may focus on children with or at risk for a disability. Requirements pertaining to students at risk for a disability are discussed in section 14.B.a.

5. READING, WRITING, AND LANGUAGE DEVELOPMENT

Program Officer: Dr. Erin Caffrey (202-219-2126; Erin.Caffrey@ed.gov)

A. Purpose

Through its Reading, Writing, and Language Development (Read/Write) program, the Institute intends to contribute to the improvement of reading, writing, and language skills for students with identified disabilities and to prevent the development of disabilities among students at risk for disabilities by (1) identifying curriculum, instructional approaches, and practices that are associated with better reading, writing, or language outcomes for students with identified disabilities and students at risk for disabilities as well as mediators and moderators of the effects of these practices; (2) developing curricula, instructional approaches or strategies for teaching reading, writing, or language skills to students with identified disabilities or students at risk for disabilities; (3) establishing the efficacy of fully developed curricula, instructional approaches, or strategies for teaching reading, writing, or language skills to students with

identified disabilities or students at risk for disabilities; (4) providing evidence on the effectiveness of curricula, instructional approaches, or strategies for teaching reading, writing, or language skills when implemented at scale; and (5) developing and validating reading, writing, or language assessments that can be used in instructional settings.

The long-term outcome of this program will be an array of tools and strategies (e.g., assessments, instructional approaches) that have been documented to be effective for improving reading, writing, or language outcomes for students with identified disabilities and students at risk for disabilities from kindergarten through Grade 12.

B. Background

Students with disabilities do not attain the same performance thresholds as their peers on a range of language, reading, writing, and state outcome measures. For example, the 2007 National Assessment of Educational Progress (NAEP) report indicates that, in fourth grade, 64 percent of students with disabilities who participated scored below the basic level in reading achievement in contrast to 30 percent of students without disabilities. Reading below the basic level means that when reading grade appropriate text, these students cannot extract the general meaning of text, make obvious connections between the text and their own experiences, or make simple inferences from the text. In other words, approximately two-thirds of fourth grade students with disabilities who take the NAEP do not understand what they have read. In writing, a similar picture emerges. The 2002 NAEP writing assessment report indicated that, in fourth grade, 43 percent of students with disabilities who participated scored below the basic level in contrast to 11 percent of students without disabilities. The NAEP results make clear the substantial gap in reading and writing skills between students with and without disabilities.

The Institute intends for its Read/Write research program to support research on the development and evaluation of curricula and instructional approaches that are intended to improve reading, writing, and language outcomes for students with disabilities, or at risk for disabilities from kindergarten through Grade 12. In addition, the Institute supports research to develop or validate assessments of reading, writing, or language for the purpose of screening, diagnosis, progress monitoring, or evaluating outcomes for students with disabilities or at risk for disabilities. The types of projects that are appropriate for this program are illustrated by, but not limited to, the examples provided below.

Interventions appropriate for research under this program are interventions for students with high- or low-incidence disabilities that are delivered to the student by teachers, related service providers, or other school personnel. For example, an applicant might propose to adapt an existing comprehensive reading curriculum for students with hearing impairments or to develop instructional strategies for improving language/communication skills of students with significant intellectual disabilities. As another example, applicants could consider developing instructional approaches or strategies for improving reading comprehension that could be incorporated into instruction in content courses (e.g., history, science) for middle- or high-school students with learning disabilities.

The Institute encourages the development and/or validation of assessments of reading, writing, or language that are intended to be used by practitioners to identify, diagnose, monitor progress, or evaluate outcomes in reading, writing, or language. For example, applicants could compare the relative predictive validity of short-term dynamic assessments versus progress monitoring instruments.

Under the Read/Write research program, the Institute also accepts applications to develop or evaluate interventions that could be used as a tier in a Response to Intervention model. For example, an applicant might propose to evaluate a secondary-tier intervention intended to improve expressive vocabulary to enhance writing skills of students with or at risk for learning disabilities.

C. Specific Requirements
For the FY 2009 Read/Write topic, applicants must submit under *either* Goal One *or* Goal Two *or* Goal Three *or* Goal Four *or* Goal Five. More details on the requirements for each goal are listed in the section on General Requirements of the Proposed Research. In this section, specific requirements that apply to applications to the Read/Write topic are described.

Under the Read/Write program, applications must address *interventions* designed to improve reading/pre-reading, writing/pre-writing, or language outcomes of students with disabilities or students at risk for disabilities from kindergarten through Grade 12 or *assessments* that can be used by practitioners to screen, diagnose, monitor progress, or evaluate outcomes in reading, writing, or language outcomes for students with disabilities or at risk for disabilities.

- Intervention programs may be classroom-based or for use in alternative school settings.
- Interventions may be delivered by teachers, related service providers, or other school staff.
- Interventions and assessments may focus on students with or at risk for a disability. Requirements pertaining to students at risk for disabilities are discussed in section 14.B.a.

6. MATHEMATICS AND SCIENCE EDUCATION

Program Officer: Dr. David Malouf (202-219-1309; David.Malouf@ed.gov)

A. Purpose
Through its Mathematics and Science Education (Math/Science) program, the Institute intends to contribute to the improvement of mathematics and science education for students with identified disabilities and to prevent the development of disabilities among students at risk for disabilities by: (1) identifying curricula, instructional approaches, and practices that are associated with better mathematics or science outcomes for students with disabilities or students at risk for disabilities, as well as mediators and moderators of the effects of these practices; (2) developing curricula, instructional approaches, or practices in mathematics and science education for students with disabilities or students at risk for disabilities; (3) establishing the efficacy of fully developed mathematics and science education interventions for students with disabilities or students at risk for disabilities; (4) providing evidence on the effectiveness of mathematics and science interventions for students with disabilities or students at risk for disabilities when implemented at scale; and (5) developing and validating assessments of mathematics and science learning for students with disabilities or students at risk for disabilities.

The long-term outcome of this program will be an array of tools and strategies (e.g., curricula, programs, approaches) that have been demonstrated to be effective for improving mathematics and science learning and achievement for students with disabilities or at risk for disabilities from kindergarten through Grade 12.

B. Background
Students with disabilities lag behind their peers without disabilities in both math and science achievement. For example, in the 2007 National Assessment of Educational Progress (NAEP) mathematics assessment, 40 percent of Grade 4 students with disabilities scored below the basic level compared to 15 percent of Grade 4 students without disabilities. Among Grade 8 students, 66 percent of students with disabilities scored below the basic level compared to 25 percent of students without disabilities. Among Grade 12 students on the 2005 NAEP mathematics assessment, 83 percent of students with disabilities scored below the basic level compared to 36 percent of students without disabilities. In the 2005 NAEP science assessment, 55 percent of the Grade 4 students with disabilities scored below the basic level compared to 30 percent of the Grade 4 students without disabilities. At Grade 8, 73 percent of the students with disabilities scored below the basic level in the science assessment compared to 38 percent of the students without disabilities. Among Grade 12 students, 83 percent of students with disabilities scored below the basic level in science achievement compared to 43 percent of students without disabilities.

Interventions appropriate for research under this program are interventions for students with high- or low-incidence disabilities that are delivered to the student by teachers, related service providers, or other school personnel. For example, a number of interventions (e.g., Nemeth code tutorials for students or teachers, embossed graphics for presenting visual information, captioned media) have been developed to make mathematics or science content more accessible for students with blindness, visual impairments, deafness or hearing impairments. Similarly, technology-based interventions, such as simulations, multimedia, and virtual reality, have been developed to allow students with physical disabilities to experiment with science concepts or to support students with disabilities in learning science and mathematics (e.g. anchored instruction, supported electronic text). Relatively little systematic research has been conducted on the impact of interventions such as these, and the Institute encourages researchers to propose projects to conduct rigorous research on the effect of such interventions on learning outcomes for students with disabilities.

Instruction in mathematics and science is shaped by different theories which vary in their implications regarding, for example, the importance of active student construction of knowledge through discovery- or inquiry-based learning, and the need for direct and explicit instruction for concept and skill development. The Institute does not intend to limit research to any particular framework, and is interested in proposals to develop or test different theoretically-based approaches for teaching mathematics or science to students with disabilities.

Under the Math/Science research program, the Institute accepts applications to develop or evaluate interventions that could be used as a tier in a Response to Intervention model. For example, an applicant might propose to evaluate a secondary-tier intervention intended to improve mathematics achievement of students with or at risk for learning disabilities.

C. Specific Requirements

For the FY 2009 Math/Science topic, applicants must submit under *either* Goal One *or* Goal Two *or* Goal Three *or* Goal Four *or* Goal Five. More details on the requirements for each goal are listed in the section on General Requirements of the Proposed Research. In this section, specific requirements that apply to applications to the Math/Science topic are described.

Under the Math/Science program, applications must address *interventions* designed to improve mathematics or science outcomes of students with disabilities or students at risk for disabilities from kindergarten through Grade 12 or *assessments* that can be used by practitioners to screen, diagnose, monitor progress, or evaluate outcomes in mathematics or science for students with or at risk for disabilities.

- Intervention programs may be classroom-based or for use in alternative school settings.
- Interventions may be delivered by teachers, related service providers, or other school staff.
- Interventions and assessments may focus on students with or at risk for a disability. Requirements pertaining to students at risk for disabilities are discussed in section 14.B.a.

7. SOCIAL AND BEHAVIORAL OUTCOMES TO SUPPORT LEARNING

Program Officer: Dr. Jacquelyn Buckley (202-219-2130; Jacquelyn.Buckley@ed.gov)

A. Purpose

The purpose of the Social and Behavioral Outcomes to Support Learning (Social/Behavioral) research grant program is to contribute to the prevention or amelioration of behavior problems in students with or at-risk for disabilities and concomitantly, improve their developmental and academic outcomes by: (1) identifying programs or practices that are associated with better behavioral, social, emotional, or functional outcomes for students with or at risk for disabilities and the conditions that mediate and moderate the effects of such programs or practices; (2) developing programs that are intended to improve behavioral, social, emotional, or functional outcomes of students with or at risk for disabilities; (3) establishing the efficacy of interventions that are intended to improve behavioral, social, emotional, or functional outcomes of students with or at risk for disabilities; (4) evaluating the effectiveness of interventions implemented at scale; and (5)

developing and validating assessment tools and procedures, including the "functional behavioral assessments" stipulated in IDEA [Sec. 615 (k) (1)] for use in home, instructional, and non-instructional settings to identify or diagnose social skill deficits or behavior problems, and to monitor the behavior of students with or at risk for disabilities.

The long-term outcome of this program will be an array of tools and strategies (e.g., assessment tools and interventions/strategies) that have been documented to be effective for preventing behavior problems and improving the behavioral, emotional, functional, social skills, and likewise, the developmental trajectory and academic performance of students with or at risk for disabilities from kindergarten through Grade 12.

B. Background

Research on the efficacy of behavioral interventions and supports designed to manage, control, and prevent a range of behavior and antisocial problems (e.g., violence toward peers or adults, self-injury, noncompliance, bullying, withdrawal, truancy) in a range of settings (e.g., school, general and special education classrooms, home, work, community) is historically robust (Baer, Wolf, & Risley, 1968; Becker, Madson, Arnold, & Thomas, 1967; Safran & Oswald, 2003; Sugai, et al., 2000). However, much remains to be done in order to understand and advance the application, scalability, and sustainability of these behavioral interventions and supports.

Through the Social/Behavioral program, the Institute supports research to develop or evaluate interventions to improve social or behavioral outcomes for students with or at risk for high- or low-incidence disabilities. Interventions may be delivered as school-wide or classroom-wide programs or to individual or small groups of students and may be delivered by teachers, related service providers, school psychologists, or other school staff. For example, researchers may develop a classroom-based program to decrease problem behaviors (e.g., aggression, disruption) and increase appropriate behaviors (e.g., positive social interactions) for students with autism in inclusive classrooms. The program might include specific classroom management strategies for the teacher along with specific behavior skills for a student with autism taught by a para-professional.

The Institute encourages research to develop programs and interventions that combine the disciplines of special education and mental health with the goal of preventing behavior problems and improving the academic outcomes for students with disabilities. Considerable work focusing on interventions that are aimed at preventing or ameliorating behavior disorders in children and youth has been conducted in the areas of developmental psychopathology, prevention research, and children's mental health services. Much of this work focuses on improving social and behavioral functioning in schools and other community settings, yet there has been relatively little systematic effort to bridge these efforts with prevention and intervention research in special education. The Institute also encourages researchers to consider, for example, tailoring programs developed in children's mental health aimed at preventing behavior and mental health disorders (e.g., conduct disorder) and evaluating the impact of those programs on *school-based behavior and academic outcomes*, including referral and classification for special education.

Under the Social/Behavioral program, the Institute also supports research to develop or validate assessments for screening or progress-monitoring purposes. For example, behavior problems can be evident in childhood, yet some children do not evince behavior problems until later such as in middle school or late elementary school. Accurately identifying students with later onset behavior problems is the necessary first step in providing needed intervention services to older students. To contribute to solving this problem, researchers could analyze an existing large group longitudinal dataset to determine which variables are predictive of late onset behavior problems. Researchers could then use this information to develop a screening instrument that can be practically used by school personnel to accurately identify students with late onset behavior problems. The instrument would be beneficial for researchers developing interventions targeting this population.

C. Specific Requirements

For the FY 2009 Social/Behavioral topic, applicants must submit under *either* Goal One *or* Goal Two *or* Goal Three *or* Goal Four *or* Goal Five. More details on the requirements for each goal are listed in the section on General Requirements of the Proposed Research. In this section, specific requirements that apply to applications to the Social/Behavioral topic are described.

Under the Social/Behavioral program, applications must address *interventions* designed to improve behavioral, social, emotional, or functional outcomes of students with or at risk for from kindergarten through Grade 12 or *assessments* that can be used by practitioners to screen, diagnose, monitor progress, or evaluate behavioral, social, emotional, or functional outcomes for students with or at risk for disabilities.

- Intervention programs may be school-based alone or school-based with a home or community component. Research in alternative school or home settings (e.g., residential treatment programs) is eligible.
- Interventions may be delivered by teachers, school psychologists, related service providers, other school-based or school-affiliated staff (e.g., clinical psychologists contracted with a school district), or parents.
- Interventions and assessments may focus on students with or at risk for a disability. Requirements pertaining to students at risk for disabilities are discussed in section 14.B.a.

The Institute recognizes that, in general, Social/Behavioral interventions are designed to change directly student behavior and/or the teaching and learning environment and indirectly affect student learning and achievement. Applicants under Goal Three and Goal Four must provide measures of the primary mediators (i.e., proximal outcomes), as well as measures of student academic outcomes (e.g., grades, on-time graduation rates, achievement scores). For example, applicants proposing to evaluate a program to improve student behavior must include measures of the student behaviors the intervention is designed to affect directly (e.g., disruptive classroom behaviors) as well as measures of academic outcomes.

8. TRANSITION OUTCOMES FOR SPECIAL EDUCATION SECONDARY STUDENTS

Program Officer: Dr. Jacquelyn Buckley (202-219-2130; Jacquelyn.Buckley@ed.gov)

A. Purpose

The purpose of the research program on Transition Outcomes for Special Education Secondary Students (Transition) is to contribute to the improvement of transition outcomes for secondary students with disabilities. Transition outcomes include the behavioral, social, communicative, functional, occupational, and academic skills that enable young adults with disabilities to obtain and hold meaningful employment, live independently, and obtain further education and training. Through the Transition program, the Institute intends to support research to: (1) identify curricula, instructional approaches, transition services, or programs that are associated with better transition outcomes for secondary students with disabilities as well as mediators and moderators of the effects of these practices; (2) develop interventions to improve the transition outcomes of secondary students with disabilities; (3) establish the efficacy of fully developed interventions for improving the transition outcomes of secondary students with disabilities; (4) provide evidence on the effectiveness of interventions for improving the transition outcomes of secondary students with disabilities when implemented at scale; and (5) develop and validate measures that assess skills predictive of successful transition outcomes for secondary students with disabilities.

The long-term outcome of this program will be an array of tools and strategies (e.g., intervention programs, strategies, approaches) that have been documented to be effective in improving transition outcomes for secondary students with disabilities.

B. Background

Education practitioners and policymakers face considerable challenges in improving transition outcomes for secondary students with disabilities. According to recent reports from the National Longitudinal Transition

Study-2 (Wagner et al., 2003; Wagner et al., 2005), a study of a nationally representative sample of adolescents across the disability categories, students' grade-level equivalent performance on standardized achievement tests was on average about 3.6 years behind grade level in reading and mathematics. Among those individuals who were no longer in school, about 28 percent had dropped out prior to receiving a diploma. In addition, a substantial minority experienced social and behavioral problems (e.g., about 17 percent were reported to have difficulty controlling their behavior in class; about 13 percent had been arrested). In the first years after high school, individuals with disabilities were much less likely to attend postsecondary education than were individuals without disabilities. In the first years after high school, about 21 percent of youth with disabilities were not engaged in their community either through postsecondary education, job training, or employment.

The Institute's Transition program is intended to address the challenges for improving the transition outcomes of secondary students with high- or low-incidence disabilities. Interventions appropriate for this topic may be delivered in classrooms or alternative school-settings, and may be solely school-based or school-based with community or home components. Under this topic, the Institute will consider proposals to develop or evaluate interventions intended to improve students' transition from high school to work settings, independent living, or further education and training. For example, an applicant might propose to develop a work-related intervention including school and workplace components that is intended to improve transition into employment for students with significant intellectual disabilities.

Under the Transition program, the Institute also supports research to develop or validate instruments to assess behaviors and skills for students with disabilities that are related to successful transitions from school to work, independent-living, or further education. For example, an applicant could propose to develop and validate an instrument to assess specific behaviors and functional skills (e.g., social interaction and communication skills, motor skills, personal living skills) that are predictive of successful transition to employment for students with mild to moderate intellectual disabilities.

C. Specific Requirements

For the FY 2009 Transitions topic, applicants must submit under *either* Goal One *or* Goal Two *or* Goal Three *or* Goal Four *or* Goal Five. More details on the requirements for each goal are listed in the section on General Requirements of the Proposed Research. In this section, specific requirements that apply to applications to the Transitions topic are described.

Under the Transitions topic, applications must address *interventions* designed to improve transition outcomes of secondary students with disabilities or *assessments* that can be used by practitioners to screen, diagnose, monitor progress, or evaluate transition outcomes for secondary students with disabilities.

- Intervention programs may be school-based alone or school-based with a home or community-based component.
- Interventions may be delivered by teachers, school psychologists, related service providers, or other school staff alone or in conjunction with community-based personnel or parents.
- Interventions and assessments must focus on students with disabilities. Applications to study students at risk for developing disabilities are not eligible for the Transition program.

9. COGNITION AND STUDENT LEARNING IN SPECIAL EDUCATION

Program Officer: Dr. Celia Rosenquist (202-219-2024; Celia.Rosenquist@ed.gov)

A. Purpose

The purpose of the Cognition and Student Learning in Special Education (Cognition) research program is to improve learning for students with disabilities by bringing recent advances in cognitive science to (1) identify underlying processes involved in reading, writing, mathematics skills, or science that are associated with student outcomes; (2) develop interventions – instructional approaches, practices, and curriculum – for improving student learning; (3) establish the efficacy of existing interventions and approaches for improving

student learning with efficacy or replication trials; and (4) develop measurement tools that can be used to improve student learning and achievement.

The long-term outcome of this program will be an array of tools and strategies (e.g., instructional approaches, computer tutors) that are based on principles of learning and information processing gained from cognitive science and that have been documented to be efficacious for improving learning for students with disabilities in preschool through Grade 12.

B. Background

The most important outcome of education is student learning. Recent advances in understanding learning have come from cognitive science, as well as cognitive and developmental psychology research, but these advances have not been widely or systematically tapped in education in general, and in special education in particular. Over the past five years, the Institute has supported a Cognition and Student Learning program through the National Center for Education Research. This program has been one of the most productive research programs funded by the Institute. By adding this topic to the Special Education Research programs, the Institute intends to establish a scientific foundation for special education by building on the theoretical and empirical advances that have been gained through cognitive science and applying them to special education practice with the goal of improving learning and academic achievement for students with disabilities.

Through the Cognition research program, the Institute will support research that utilizes cognitive science to develop, implement, and evaluate approaches that promise to improve teaching and learning for children with high- or low-incidence disabilities. For example, a researcher might propose a project that begins with an examination of how differences in the ability of students with reading disabilities to attend to and distinguish main ideas from extraneous details in a text influences their recall, summarization, and reading comprehension. Using this knowledge, the researcher would propose to develop strategies to support students' ability to attend to and distinguish these text characteristics and examine whether these interventions improve comprehension outcomes. As another illustration, a researcher might propose to examine variation in memory skills of students with intellectual disabilities and develop a series of strategies to improve these skills that can be embedded in a curriculum. The researcher could then examine whether improving memory skills leads to improved performance on measures of academic skills (for example, arithmetic or mathematical reasoning). As a final example, a research team might take a task such as text comprehension, identify the information processing demands for students with visual impairments, and test the effects on comprehension of different strategies for presenting text in ways that reduce information processing demands.

Under the Cognition research program, the Institute also funds projects designed to identify the cognitive processes underlying the acquisition of reading, writing, mathematics knowledge and skills, science knowledge and skills, or general study skills. Such studies might include short-term longitudinal studies in which the objective is to identify the component skills that are both predictive of reading, writing, mathematics, or science proficiency in academic settings, and that can be improved, accelerated, or advanced through instruction. In order for applications to be competitive, the researcher should make explicit the link between the underlying cognitive process and improving academic achievement. That is, it is not sufficient to simply describe cognitive processes. The objective here is to gain a better understanding of which processes and skills are predictive of subsequent proficiency in reading, writing, mathematics, science, or study skills that would allow researchers to develop interventions (e.g., curricula or instructional approaches) that target these processes and ultimately result in improving academic achievement. For example, a researcher might propose to measure early narrative discourse skills or speech and language perception skills of students who are deaf or hard-of-hearing and correlate differences in the emergence of these skills with measures of reading skills such as phonological awareness, decoding, and knowledge of print concepts. Strong applications would include a rationale that justifies the plausibility of developing interventions that might improve the targeted underlying skills. The Institute strongly encourages cognitive

scientists to collaborate with special education researchers who understand the variation in learner characteristics and teaching and learning in the context of authentic education settings.

In addition, the Institute encourages projects that address how principles and knowledge emerging from research in cognitive science can be used to better understand teacher knowledge and classroom practice, in order to improve teacher instructional practices and ultimately student learning. For example, researchers could identify teachers whose students with disabilities typically have higher levels of achievement than students of other teachers in a school or district, conduct detailed observations to compare the instructional practices of high-achievement teachers with those of the other teachers, and use these data to identify instructional approaches or patterns of instructional strategies that distinguish the two groups (e.g., Connor, et al., 2007). The ultimate objective would be to obtain an understanding of the instructional approaches of high-achievement teachers that would lead to the development of interventions to improve academic outcomes.

C. Specific Requirements

a. <u>Requirements for all Cognition applications</u>

(i) Submission to specific goals.

For the FY 2009 Cognition and Student Learning topic, applicants must submit under *either* Goal One *or* Goal Two *or* Goal Three *or* Goal Five. The Institute numbers goals consistently across research grant programs. The Institute does *not* accept applications under Goal Four for the Cognition program. More details on the requirements for Goals One, Three, and Five are listed in Part III Requirements of the Proposed Research. Methodological requirements for Cognition Goal Two applications are described below in section II.9.C.b, Methodological requirements for Goal Two Cognition applications. Here, specific requirements that apply to all applications to the Cognition and Student Learning topic are described.

(ii) Content and sample requirements.

Under the Cognition program, applications must address:

- curriculum, instructional practice, or assessment in reading, pre-reading, writing, pre-writing, mathematics, early mathematics, science, early science, or study skills for students with disabilities from prekindergarten through grade 12; or
- transitional skills for secondary students with disabilities to improve successful transitions to independent living, employment, or further education
- interventions must focus on students with disabilities. Applicants proposing to study students at risk for developing disabilities are not eligible to submit to the Cognition program.

(iii) Authentic education settings and laboratory settings for Goals One, Two, and Five.

Under Goals One, Two, and Five, the *majority* of the proposed work should be conducted in authentic education settings (e.g., elementary school classrooms, distance learning or online education delivery modes); however, some work may be conducted in laboratory settings. For example, laboratory research may be used to identify critical components of the intervention that is being developed.

(iv) Authentic education settings for Goal Three.

Goal Three is appropriate for applicants proposing to evaluate fully developed interventions. Although applicants proposing projects under Goals One, Two, and Five may include some experimental work that is conducted in laboratory settings, the Institute does **not** support laboratory research under Goal Three projects. Interventions that are ready to be evaluated through efficacy trials must be fully developed and ready to be implemented in authentic education settings.

b. Methodological requirements for Goal Two Cognition applications

The methodological requirements described in this section are to be followed instead of the Methodological Requirements listed in Part III.D.d Methodological requirements for Goal Two. The other requirements for Goal 2 that described under Part III.D. Requirements for Goal Two (i.e., a. Purpose of Goal Two; b. Requirements for the proposed intervention; c. Significance of the project; e. Personnel; f. Resources; g; Additional Considerations; and h. Awards) *do* apply to Goal Two Cognition applications.

Under the Cognition program, typical Goal Two projects consist of a series of small experiments to determine which strategies, alone or in combination, in which sequence and for what duration optimizes learning. The experimental process is used to put together the components of the intervention.

A detailed description of the research design, measures, data collection procedures, and data analysis plans must be provided.

(i) Setting for proposed research.

The proposed project must include research that is conducted in an education delivery setting and may include some experiments that are conducted in the laboratory.

(ii) Research questions.

Research questions or hypotheses should be clearly specified.

(iii) Sample.

A clear description of, and a rationale for, the sample or study participants, including justification for exclusion and inclusion criteria, should be included.

(iv) Research methods.

Research methods must be appropriate to the specified research questions or hypotheses. The study design should be clearly described. Independent and dependent, or predictor and criterion, or descriptive and explanatory variables should be distinguished. Where groups or conditions are involved, strategies for assigning participants to groups should be clear. If the research is intended to test hypotheses, the design should make it possible, in principle, to obtain results that disconfirm the hypotheses. In competitive applications, a power analysis is included to provide some assurance that the sample is of sufficient size. For research including interventions conducted in education settings, methods and measures for tracking implementation of the intervention should also be described.

(v) Measures and data collection procedures.

Measures and data collection procedures should be clearly described, including information on the reliability and validity of the measures. In addition, when data are collected on student learning in authentic education delivery settings (e.g., schools), researchers include some outcome measures that are relevant to school learning (e.g., classroom tests) and do not rely solely on researcher-developed instruments.

(vi) Data analysis.

A detailed description of the data analysis plan must be included. Descriptions of the design and data analysis strategies should provide sufficient detail for reviewers to determine if the research questions are appropriately addressed.

Finally, the Institute recognizes that when an investigator proposes a series of experiments to develop an intervention there are times in which the exact nature of one or more experiments in the series depends on the results from prior experiments. In such cases, the applicant should provide sufficient information on how results from one experiment will be used to determine the parameters for subsequent studies so that reviewers are able to understand the overall approach that the applicant is proposing.

10. TEACHER QUALITY

Program Officer: Dr. David Malouf (202-219-1309; David.Malouf@ed.gov)

A. Purpose

The purpose of the Institute's Teacher Quality Research (Teacher Quality) program is to identify effective strategies for improving the performance of current classroom teachers in ways that increase reading, writing, language, mathematics, science, social, behavioral, and secondary transitional outcomes for students with disabilities from kindergarten through Grade 12. The Institute intends for the Teacher Quality research program to fulfill five goals: (1) identifying the characteristics or practices of teachers that are associated with better student outcomes; and identifying programs and practices for teacher professional development that are associated with better student outcomes, as well as mediators and moderators of the relations between student outcomes and these teacher characteristics, programs, or practices; (2) developing new programs and practices for teacher professional development that will eventually result in improving teacher practices and through them student outcomes; (3) evaluating the efficacy of fully-developed programs and practices for teacher professional development for improving teacher practices and through them student outcomes; (4) evaluating the effectiveness of teacher professional development programs that are implemented at scale and intended for improving teacher practices and through them student outcomes; and (5) developing and validating new assessments of teacher quality, or validating existing assessments for teachers at any grade level from kindergarten through grade 12 against measures of student outcomes.

Long term outcomes of the Teacher Quality program will be an array of tools and strategies (e.g., in-service programs, assessments) that have been demonstrated to be effective for improving and assessing teacher performance in ways that are linked to improvements in student outcomes. In this Request for Applications, the term *professional development* refers to the *in-service training* of current teachers.

B. Background

Most students with disabilities (about 96%) are educated in school buildings attended by their peers without disabilities, and almost half of all students with disabilities (46.5 percent) are educated in the general education classroom for most of the school day (U.S. Department of Education, 2005). Thus, educational responsibilities for students with disabilities are shared by general and special educators. In a survey conducted in 2000, only 32 percent of the public school teachers who taught students with disabilities indicated that they were very well prepared to address the needs of these students. Of the teachers surveyed, 49 percent had received professional development during the previous year on addressing the needs of students with disabilities, and 53 percent of the teachers who received this training said it improved their teaching moderately or a lot (Parsad, Lewis, & Farris, 2001).

One approach to improving student outcomes is to identify effective curricula and instructional approaches; a second approach is to improve teachers' knowledge and skills. This second approach is the approach taken by the Institute's Teacher Quality research program. Through this program, the Institute intends to improve the quality of teaching through development and evaluation of teacher professional development programs for special education teachers and general education teachers who instruct students with disabilities. Those interested in improving teacher quality through systemic practices and polices (e.g., alternative certification, incentives for recruiting and retaining highly qualified special education teachers) should refer to the topic on Systemic Interventions and Policies for Special Education.

Through the Teacher Quality program, the Institute supports research on professional development programs for teachers who instruct students with high- or low-incidence disabilities. For example, an applicant may propose to develop a web-based in-service training program designed to improve the ability of special educators to assess and monitor skill levels of learners with autism, and use data-based decision making procedures to improve the performance of their students.

Research on teacher professional development interventions should consider both the content of the programs (i.e., what is it that teachers are expected to learn) as well as the delivery of the content (e.g., coaches, online resources, workshops). Although many experts believe that most current professional development offerings are not effective for improving teacher practice and through teachers, student outcomes, very little research exists that allows for clear causal interpretations of the effect of specific professional development programs or for knowing which elements of professional development programs (e.g., coaching) are critical or relatively more important than others. The Institute encourages researchers to test different delivery modes using a curriculum or instructional approach that has already been shown to be effective for improving student outcomes.

In addition to research on the development and evaluation of teacher professional development programs, the Teacher Quality program supports research on the development of practical assessments of teacher subject matter knowledge, pedagogical knowledge, instructional skills, and validation of these assessments (or existing assessments) against measures of student outcomes. Understanding what skills and knowledge make a teacher effective, and identifying teacher candidates and current teachers who have these skills and knowledge is critical to developing a highly qualified teacher workforce. Ideally, assessments of pedagogical knowledge and skills and subject matter knowledge would not only predict student outcomes but also be practical to administer and cost-effective. The Institute is interested in proposals to *validate existing measures* of pedagogical knowledge and subject matter knowledge against measures of student learning and achievement as well as proposals to *develop and validate new measures*.

The Institute also invites applications to develop and/or validate measures of teacher practices that could be used by schools to provide feedback to teachers and improve the quality of classroom instruction; such measures must be validated against measures of student outcomes.

Finally, under Goal One the Institute encourages researchers to consider multivariate analyses of district or state databases in order to identify the characteristics of teachers or teacher in-service programs that are associated with better student outcomes for students with disabilities and then supplement these analyses with analyses of original data collected to identify the instructional practices that occur in those teachers' classrooms that might account for these achievement gains. The objective of such studies would be to identify the practices that better teachers implement (e.g., type or combinations of instructional activities) that are associated with improved student outcomes and for which students these effects occur (e.g., Connor, et al., 2007). Researchers following this strategy who can successfully predict student performance could use this information as the basis for developing an intervention in a subsequent project.

C. Specific Requirements

For the FY 2009 Teacher Quality topic, applicants must submit under *either* Goal One *or* Goal Two *or* Goal Three *or* Goal Four *or* Goal Five. More details on the requirements for each goal are listed in Part III Requirements of the Proposed Research. In this section, specific requirements that apply to applications to the Teacher Quality topic are described.

- Applications submitted to the Teacher Quality topic must be relevant to programs for or assessments of teachers who provide instruction to students with disabilities.
- Applications must address general or special education teacher professional development in grades kindergarten though grade 12 for teaching reading, writing, language, mathematics, or science, as well as teaching social, behavioral, and secondary transitional skills.
- Research on assessments must address development and/validation of assessments of teacher subject matter, pedagogical knowledge, or instructional practices for new or current teachers at any level from kindergarten through grade 12.
- Under Goal Three and Goal Four, applicants must include measures of teacher behaviors as well as measures of student outcomes.
- Professional development refers to in-service training of teachers. Pre-service training of prospective teachers is not eligible for support under this research program.

Applicants interested in teacher quality for prekindergarten teachers should apply to the Early Intervention and Early Childhood Special Education research program (program officer: Dr. Kristen Lauer; email: Kristen.Lauer@ed.gov; phone: 202-219-0377).

Distinction between the Teacher Quality and content topics. Applicants sometimes wonder whether the project they plan to propose is more appropriate for the Teacher Quality topic or for one of the content domain topics (e.g., Read/Write, Math/Science, Social/Behavioral, Transitions) topic. Applications that are appropriate for the content topics are those that develop and/or evaluate specific curricula or instructional approaches for students, whereas applications that are appropriate for the Teacher Quality program are those that have teachers as the primary target of the intervention. The Institute recognizes that this distinction may be blurred. Oftentimes implementation of a specific curriculum includes training for teachers on how to best deliver the curriculum, but the focus of the intervention is the new curriculum for students. Similarly, implementation of a new instructional approach almost always includes training for teachers on the instructional approach, but the focus of the intervention is on a different approach for teaching students, *not* on different ways to train teachers. If the investigator is focusing on the outcomes of variations in curriculum content or variations in instructional approaches, then the application should be submitted to the appropriate content topic. If the researcher is examining outcomes of variations in approaches to teacher professional development training, then the application should be submitted to the Teacher Quality topic. Below are some examples to help clarify the intent of the two programs. In all cases, the Institute strongly encourages applicants to contact the program officer listed at the end of this announcement to help them identify the more appropriate topic under which to submit their application.

Projects for Teacher Quality	**Projects for a Content Topic**
Example A The district uses Reading Curriculum A for its elementary school students. Applicant proposes to test professional development training on reading instruction for students with learning disabilities; half of the teachers receive the new training and half receive the district's regular training. All students receive Reading Curriculum A.	**Example B** The applicant proposes to evaluate a reading curriculum for Grade 4 students with learning disabilities. Half of the students with learning disabilities will receive the new curriculum; half of the students will receive the district's existing reading curriculum and practices for students with learning disabilities. The teachers whose students receive the new curriculum will receive training on how to implement the new curriculum. All teachers will participate in the district's professional development on reading.
Example C The applicant wants to test whether professional development to improve math instruction for students with visual impairments can be delivered effectively using an online coaching model available on a daily basis for teachers versus a coach who visits the classroom. Half of the teachers receive online coaching; half receive in-class coaching. The content of the professional development is the same for teachers in both groups. The basic curriculum that the students receive is the same in both groups.	**Example D** The applicant proposes to compare two different approaches for teaching reading comprehension strategies to middle school students with disabilities in the context of a social studies curriculum. All students receive the same social studies curriculum. Half of the students receive instruction using Instructional Approach A; the remaining students receive instruction using Instructional Approach B.

11. RELATED SERVICES

Program Officer: Dr. Erin Caffrey (202-219-2126; Erin.Caffrey@ed.gov)

A. Purpose

The purpose of the Related Services (Related Services) research program is to contribute to the improvement of reading, writing, language, mathematics, science, social, or behavioral outcomes, as well as functional skills that improve educational and transitional results of students with disabilities by: (1) identifying related services practices, programs, and delivery systems that are associated with better outcomes for students with disabilities; (2) developing related services practices, programs, and delivery systems that are intended to improve outcomes for students with disabilities; (3) determining the efficacy of related services practices, programs, and delivery systems for students with disabilities; (4) providing evidence on the effectiveness of related services practices, programs, and delivery systems for students with disabilities when implemented at scale; and (5) developing assessments that can be used to evaluate the performance of related service providers and validating these or existing assessments against child outcomes.

The long-term outcome of this program will be an array of tools and strategies (e.g., assessment tools, services, curricula, programs, practices, interventions) that have been documented to be effective for improving the reading, writing, mathematics, science, social and behavioral outcomes, as well as functional skills that improve educational and transitional outcomes of students with disabilities who receive related services from kindergarten through Grade 12.

B. Background

The provision of related services is an integral part of a free and appropriate public education for students served under Part B of IDEA. In the most recent wave of data from the Special Education Elementary Longitudinal Study (2004), 31 percent of elementary special education students received speech or language therapy; 8 percent received occupational therapy; 4 percent received social work services; and 2 percent received audiology services.

Relatively little rigorous research has been conducted to determine the impact of related services for improving student outcomes. Under the Related Services topic, the Institute supports research on related services interventions for students with high- or low-incidence disabilities. For example, an applicant could propose to evaluate the efficacy of interpreter services for students with hearing impairments by comparing the effects of interpreter services on student learning to other methods of language input, such as closed captioning. Alternatively, a study could be designed to examine the separate and combined effects of elements of interpreter practice to determine which elements are most important for improving learning for students with hearing impairments.

Through the Related Services program, the Institute encourages research on strategies, practices, or programs delivered by related services providers as well as research on school-level procedures and processes that may directly affect the delivery of related services and indirectly affect student outcomes. For example, an applicant could propose to develop a comprehensive model of coordinated service delivery that is intended to streamline communication between teachers and related service providers. Intervention components might include professional development, co-teaching, problem-solving approaches, and management strategies.

The Institute is also interested in proposals to develop or evaluate professional development programs for related services providers. As an illustration, an applicant might propose to an evaluation of a professional development program intended to improve instructional practices of occupational therapists targeting fine motor skills and writing outcomes. The occupational therapists could be randomly assigned to receive the intervention program or to a business-as-usual (e.g., whatever professional development training is typically provided by the district) control condition. In this design, the researcher would evaluate whether the practices of the occupational

therapists changed as well as whether the intervention directly improved students' fine motor skills and indirectly, writing outcomes.

Finally, through this program, the Institute welcomes applications to develop assessments of the practices of related service providers (i.e., a measure of the quality of the services provided) and validate such assessments against student outcomes. For example, measures of "interpreter quality" might be developed and validated against the amount of academic content learned by students with hearing impairments. As another example, progress monitoring instruments that measure physical independence in the classroom might be developed for students with visual impairments who receive orientation and mobility services.

C. Specific Requirements

For the FY 2009 Related Services topic, applicants must submit under *either* Goal One *or* Goal Two *or* Goal Three *or* Goal Four *or* Goal Five. More details on the requirements for each goal are listed in the section on General Requirements of the Proposed Research. In this section, specific requirements that apply to applications to the Related Services topic are described.

Under the Related Services topic, applications must address *interventions* designed to improve related services for students with disabilities from kindergarten through Grade 12 or *assessments* of the quality of related service providers.

- Related services that are eligible to be studied under this research program are the following, as defined in §300.34 of the Part B regulations to the 2004 reauthorization of IDEA: speech-language pathology and audiology services, interpreting services, psychological services, physical and occupational therapy, counseling services, including rehabilitation counseling, orientation and mobility services, social work services in schools, and parent training.
- Intervention programs may be school-based alone or school-based with a home- or community-based component.
- The student outcome that is the target of the related services must be one or more of the following: cognitive, communication, social/emotional, behavioral, adaptive, functional, secondary transition, reading, writing, mathematics, or science outcomes of students with disabilities kindergarten through grade 12.
- Goal Three and Goal Four evaluations of professional development interventions or systems-level interventions must include measures of both the intended proximal outcomes of the intervention (e.g., behaviors of the related services provider, quality of communication between classroom teachers and related services provider) and the student outcomes that are expected to improve.
- Interventions and assessments must focus on students with disabilities. Applicants proposing to study students at risk for developing disabilities are not eligible to submit to the Related Services program

12. SYSTEMIC INTERVENTIONS AND POLICIES FOR SPECIAL EDUCATION

Program Officer: Dr. Kristen Lauer (202-219-0377; Kristen.Lauer@ed.gov)

A. Purpose

Through the Systemic Interventions and Policies for Special Education (Systems/Policies) program, the Institute intends to contribute to the improvement of education for individuals with disabilities by (1) identifying systemic practices or policies that are associated with better outcomes for students with disabilities; (2) developing new policies or systemic practices that are intended to improve student outcomes either directly or indirectly by improving the intervention or education environment for students with or at risk for disabilities; (3) evaluating the efficacy of systemic practices or policies that are intended to improve student outcomes either directly or indirectly by improving the intervention or education environment for

students with or at risk for disabilities; (4) evaluating the impact of systemic practices and polices that are implemented at scale and are intended to improve student outcomes either directly or indirectly by improving the teaching and learning environment; and (5) developing assessments that can be used to evaluate implementation of systemic practices or policies and validating these or existing assessments against student outcomes, as well as developing and/or validating accommodations for large-scale assessments (i.e., assessments used for accountability purposes) that would permit measurement of the proficiency and growth of students with disabilities.

The long-term outcome of this program will be an array of systems-level practices and policies that have been documented to be effective for improving the intervention or education environment and thereby improving outcomes for students with or at risk for disabilities from kindergarten through Grade 12.

B. Background

Intervention and education for students with disabilities typically requires the coordination of a variety of programs and services. Through the Systems/Policies program, the Institute supports research to improve outcomes for students with disabilities by identifying changes in the ways in which systemic processes, procedures, and programs are organized, managed, and operated that may be directly or indirectly linked to student outcomes. That is, rather than focusing on improving student outcomes by changing curricula or student-level intervention approaches, researchers will identify, develop, or evaluate systems-level procedures and policies that are intended to improve the management, coordination, and implementation of systemic programs and services in ways that directly enhance the overall intervention or education environment, and indirectly improve student outcomes. In previous years, the Institute supported research on systems-level practices through its research programs on (1) Individualized Education Programs and Individualized Family Service Plans, (2) Response to Intervention, and (3) Assessment for Accountability. By establishing the Systems/Policy research program, the Institute intends to continue research in these areas and to broaden the scope of research conducted on systems-level programs and policies in order to improve the systems through which special education services are provided and thereby improve student outcomes.

Little rigorous research has examined either a direct causal relation or indirect associations between student outcomes and various systemic or organizational strategies. For example, the Institute encourages applications to improve the development, monitoring, and implementation of Individualized Education Programs (IEP) for students with high- or low-incidence disabilities. By way of illustration, under Goal Two (Development) an applicant might propose to develop a web-based program that (a) guides providers through a series of prompts related to a student's developmental goals, services, service delivery options, and assessments for measuring student progress and (b) links to additional resources to provide feedback and support for decision making during the IEP development and implementation process. The web-based program might be developed to cover a broad range of disabilities (e.g., hearing impairments, significant intellectual disabilities, visual impairments, learning disabilities) and serve, in many ways, as a virtual expert consultant for IEP teams. If an applicant already had a web-based program of this nature already developed, under Goal Three (Efficacy and Replication Projects), the applicant could propose to evaluate the effect of having access to this program on the quality of IEPs that are developed and its perceived value and utility for the IEP development process, along with its impact on student outcomes.

Under the Systems/Policy program, the Institute welcomes research on the implementation of Response to Intervention (RtI) approaches. For example, an applicant might propose to compare the efficacy of a school-wide, simultaneous RtI system in which students are placed into a secondary or tertiary intervention based on beginning of the year universal screening performance to a school-wide, sequential RtI system in which students are placed into a secondary or tertiary

intervention only after they have demonstrated a lack of progress in the previous tier. Under the Systems/Policy research program, applicants interested in RtI research must focus on the design and implementation of RtI approaches and not on the development of the secondary or tertiary interventions themselves. Applicants who are interested in developing only secondary or tertiary interventions for RtI systems should apply under the applicable content topic (e.g., Read/Write, Math/Science, Social/Behavioral).

The Institute also welcomes research on outcome assessments used for large-scale accountability purposes. For example, an applicant might propose to develop and validate new regular or alternate assessments or to modify and validate existing regular or alternate assessments for students with disabilities. This work might include research on the reliability and validity of different test accommodations for students with disabilities, approaches for designing accountability assessments to be more accessible to students with disabilities, use of individual student growth models for accountability purposes with students with disabilities, and methods for integrating large-scale assessments with IEP development, instruction, progress monitoring, and other systemic elements in order to help students with disabilities achieve academic standards.

The Institute is interested in the development and evaluation of different approaches to recruitment and retention of special education teachers and related service providers. For example, an applicant might propose to investigate the effects of significant annual financial bonuses based on special educators' performance or knowledge. The researcher might propose to examine whether this approach improves the recruitment and retention of special educators, collaboration between special educators and other school personnel, special educators' use of evidenced based practices to meet their students' individual needs, and improved outcomes for their students with disabilities.

Through the Systems/Policies program, the Institute would also like to stimulate research on special education systemic practices or policies. Using existing longitudinal data sets, investigators are able to capitalize on natural variation or discontinuities in education practices. For example, in a particular year, a state might have implemented a particular policy or program intended to improve outcomes for secondary students with disabilities. An investigator might propose interrupted time series analyses of the state's longitudinal datasets to examine changes in student outcomes that follow the implementation of the new program.

The Institute also encourages researchers to work with their local school districts to identify policies or programs that the districts are considering implementing and to determine whether a selected policy or program improves student outcomes in their schools. For example, a researcher could partner with a local school district that is considering implementing a schoolwide Response to Intervention model for behavior. Rather than implementing the program in all schools in the district during the first year, the researchers may propose to conduct a rigorous evaluation that phases in the program and uses a lottery to decide which schools will implement the program or when the program will be implemented in each school. Funding under the Systems/Policy program will allow researchers to gather and analyze the data for research purposes and to provide timely feedback to the district on the effects of the policy on improving student outcomes.

C. Specific Requirements

For the FY 2009 Systems/Policies topic, applicants must submit under *either* Goal One *or* Goal Two *or* Goal Three *or* Goal Four *or* Goal Five. More details on the requirements for each goal are listed in the section on General Requirements of the Proposed Research. In this section, specific requirements that apply to applications to the Systems/Policies topic are described.

Under the Systems/Policies topic, applications must address *policies or systemic interventions* that are intended to improve student outcomes either directly or indirectly by improving the intervention or education environment for students with or at risk for disabilities from kindergarten through

Grade 12 or *assessments* that (a) can be used to evaluate implementation of systemic practices or policies on outcomes of students with disabilities or at risk for disabilities or (b) can be used with students with disabilities for large-scale accountability purposes.

- The policies or systemic interventions may be school-based or school-based with a home or community-based component.
- Goal Three and Goal Four evaluations must include measures of both the intended proximal outcomes of the intervention (e.g., improving access to the general curriculum, preventing the inappropriate identification of students with specific learning disabilities) and the student outcomes that are expected to improve.

13. AUTISM SPECTRUM DISORDERS

Program Officer: Dr. Celia Rosenquist (202-219-2024; Celia.Rosenquist@ed.gov)

A. Purpose

The purpose of the Autism Spectrum Disorders Research (ASD) program is to contribute to the improvement of cognitive, communicative, academic, social, and behavioral outcomes of students identified with autism spectrum disorder (ASD) from preschool through Grade 12 by (1) identifying *comprehensive* preschool and school-based interventions that improve cognitive, communicative, academic, social, behavioral, and functional outcomes of students identified with ASD and the factors that mediate and moderate the effects of such interventions; (2) developing new, or modifying existing comprehensive preschool and school-based interventions to address the cognitive, communicative, academic, social, behavioral, and functional needs of students identified with ASD; (3) establishing the efficacy of fully developed comprehensive preschool and school-based interventions for students identified with ASD; and (5) developing and validating measures in cognitive, communicative, academic, social, behavioral, and functional skills that can be used by practitioners to monitor progress and evaluate outcomes for students identified with ASD.

The long-term outcome of this program will be an array of comprehensive programs and assessments that have been documented to be effective for improving the cognitive, communicative, academic, social, behavioral, and functional outcomes of students identified with ASD from preschool through Grade 12.

B. Background

The prevalence rate of students identified with an ASD has increased dramatically over the last decade. In 1992, approximately 15,302 students between the ages of 6 and 21 were identified with autism. In 2004, approximately 165,662 students between the ages of 6 and 21 were identified with autism (U.S Department of Education, n.d.). The unprecedented increase in reported incidence rates within the past decade has created an extraordinary demand on schools to provide interventions that meet the educational needs of students identified with ASD. Furthermore, the highly variable cognitive and behavioral phenotype associated with ASD creates a significant challenge in developing and implementing effective interventions that address the range of developmental and academic needs of students with ASD. Compounding the problem is that few interventions to date have been manualized (Lord et al., 2005) or implemented and evaluated in a pre-school or school based setting.

Through the ASD research program, the Institute supports the development and evaluation of *comprehensive school-based interventions* intended to improve developmental, cognitive, communicative, academic, social, behavioral, and functional outcomes of students identified with ASD. By comprehensive, the Institute means an intervention that targets multiple developmental and/or academic outcomes.

The Institute encourages researchers to develop new, modify existing, or rigorously evaluate fully-developed *comprehensive school-based interventions*. For example, applicants might consider developing an integrated literacy and social skill intervention designed to be delivered by teachers for students in kindergarden-3rd grade with ASD intended to improve academic, social, and communication outcomes. Or, applicants might consider evaluating which training approach is most effective in teaching parents the instructional strategies and approaches for the home-based component of a comprehensive preschool intervention for students with ASD. The Institute would also like to encourage applicants to develop or evaluate instructional approaches or strategies appropriate for students in middle and high school with ASD that will improve communication, behavior, and adaptive skills across academic and vocational instruction.

Applicants wishing to develop an intervention that focuses on a single outcome such as language skills or social skills must apply to the appropriate topic area competition (e.g., Read/Write, Social/Behavioral).

In addition, the Institute encourages researchers to develop and/or validate cognitive, communicative, academic, social, and behavioral measures or measurement systems designed to monitor progress and/or evaluate outcomes, particularly generalization and maintenance, for students identified with ASD.

C. Specific Requirements

For the FY 2009 ASD topic, applicants must submit under *either* Goal One *or* Goal Two *or* Goal Three *or* Goal Four *or* Goal Five. More details on the requirements for each goal are listed in the section on General Requirements of the Proposed Research. In this section, specific requirements that apply to applications to the ASD topic are described.

Under the ASD program, applications must address *comprehensive* preschool or school-based interventions intended to improve the cognitive, communicative, academic, social, and behavioral outcomes of students identified with ASD from preschool through grade 12 or *assessments* that can be used by practitioners to identify and monitor cognitive, communicative, academic, social, and outcomes of students identified with ASD. Comprehensive interventions **must** address multiple outcomes that can include cognitive, communicative, academic, social, behavioral, and functional outcomes, for students identified with ASD in a coordinated fashion.

- Interventions may be preschool or school-based interventions, as well as preschool or school-based interventions that are integrated with home-based or clinic-based interventions.
- Interventions may be designed to be delivered by teachers alone or in combination with other professionals, paraprofessionals (e.g., related service providers, other school staff, clinic-based staff) or parents.

PART III REQUIREMENTS OF THE PROPOSED RESEARCH

14. GENERAL REQUIREMENTS OF THE PROPOSED RESEARCH

A. NEW THIS YEAR

The Institute has modified requirements for Goals One and Two and encourages applicants who are familiar with previous Requests for Applications to read carefully through these sections.

B. BASIC REQUIREMENTS

a. Focus on students with disabilities

This competition is restricted to special education research for students with disabilities, as previously defined in Part I.1, Request For Applications. For some topics, research may include students at risk for specific disabilities. *Applicants should check the specific requirements listed under each topic*. Applicants proposing to study students at risk for developing disabilities must present research-based evidence of an association between risk factors in their proposed sample and the potential identification of disabilities. The determination of at-risk status must be made on an individual student basis and may include, for example, factors used for selecting students for Early Intervening Services, for moving students to higher tiers in a Response to Intervention model, or for placing students in secondary or tertiary services in a Positive Behavioral Interventions and Supports system. Evidence consisting only of general population characteristics (e.g. labeling all students in a school or district as "at risk for disabilities" because of community socioeconomic characteristics) is not sufficient for this purpose.

b. Resubmissions

Applicants who intend to revise and resubmit a proposal that was submitted to one of the Institute's previous competitions but that was not funded must indicate on the application form that their FY 2009 proposal is a revised proposal. Their prior reviews will be sent to this year's reviewers along with their proposal. Applicants should use no more than 3 pages of Appendix A to indicate the revisions that were made to the proposal on the basis of the prior reviews.

c. Applying to a topic

Applicants must submit their proposal to one of the specific topics described in Part II Research Grant Topics.

d. Applying to multiple topics

Applicants may submit proposals to more than one of the Institute's FY 2009 competitions or topics. In addition, within a particular competition or topic, applicants may submit multiple proposals. However, applicants may submit a given proposal only once (i.e., applicants may not submit the same proposal or very similar proposals to multiple topics, to multiple goals in the same topic, or to multiple competitions). If the Institute determines prior to panel review that an applicant has submitted the same proposal or very similar proposals to multiple topics within or across competitions and the proposal is judged to be compliant and responsive to the submission rules and requirements described in the Request for Applications, the Institute will select one version of the application to be reviewed by the appropriate scientific review panel. If the Institute determines after panel review that an applicant has submitted the same proposal or very similar proposals to multiple topics within or across competitions and if the proposal is determined to be worthy of funding, the Institute will select the topic under which the proposal will be funded.

Applicants who submit a proposal for the June 26, 2008 deadline may not submit the same or very similar proposal to the October 2, 2008 deadline.

e. Applying to a particular goal within a topic

For the FY 2009 Special Education Research Grants Programs, applicants must submit under *either* Goal One *or* Goal Two *or* Goal Three *or* Goal Four *or* Goal Five. The numbering of goals is consistent across the

Institute's research programs. Each goal has specific requirements that are described in the following section.

f. Determining which goal is most appropriate for the proposed project

Applicants should read carefully the requirements for each Goal and the examples of appropriate projects under each Goal. The Institute strongly encourages potential applicants to contact the relevant program officer listed in Section 29 if they have any questions regarding the appropriateness of a particular project for submission under a specific goal.

C. Requirements for Goal One (Identification Projects)

Because the requirements for Goal One are essentially the same across the Institute's research grant topics, a generic description is used in the funding announcement. Consequently, the examples provided may not apply to a particular topic.

a. Purpose of Goal One (Identification)

Through all of its research programs that include the Identification goal (Goal One), the Institute is interested in the (1) identification of programs and practices that may be associated with better educational outcomes; (2) examination of factors and conditions that may mediate or moderate the relations between student outcomes and these programs and practices; and (3) identification of malleable factors predictive of achievement and potentially amenable to intervention.

For Goal One, a number of methodological approaches are appropriate. One approach is to conduct secondary data analyses of multivariate data, such as longitudinal individual student data that exist in a number of federal-, state-, and district-level databases. Using existing longitudinal data sets, investigators are able to capitalize on natural variation (e.g., students receiving different math curricula) or discontinuities in education practices (e.g., when a new policy is implemented). Longitudinal data may also be used to identify predictor variables for relevant outcomes that are malleable and a potential target for intervention. For example, Duncan and colleagues (2007) conducted secondary regression analyses on six longitudinal datasets to identify early predictors of reading and math achievement in school. By including beginning of kindergarten academic, socioemotional, and attention skills in one model, they were able to estimate the relative effects of these factors on later school achievement.

The strongest approaches to statistical modeling of multivariate data involve testing two or more models of relationships using the same data. Because multivariate analyses cannot fully adjust for selection biases and the effects of variables that were not measured or were not measured well, they are seldom sufficient to support strong causal conclusions about what works. However, when two or more models of relationships among variables are tested with the same data, it may be possible to determine that one is more plausible than another. That, in turn, can direct future efforts in avenues that are more likely to be productive. Under Goal One, the Institute does *not* support secondary data analyses to determine the effect of interventions. Applicants interested in secondary data analysis using approaches such as interrupted time series analyses, regression discontinuity designs, or other quasi-experimental designs to determine the effect of an intervention should refer to Goal 3 or Goal 4.

Another approach for identifying promising practices or malleable factors predictive of achievement and potentially amenable to intervention is through the use of meta-analysis of the statistical and descriptive information reported in existing studies when sufficient numbers of studies are available to support a probing meta-analysis. Such meta-analyses are sensitive to issues that potentially affect or moderate the results, such as quality of the research design (e.g., Wilson, Lipsey, and Derzon, 2003), and type of implementation[1] (e.g., Lipsey, 1999; Weisz et al., 1995; Wilson, Lipsey, and Derzon, 2003).[2] For Goal One

[1] By type of implementation, the Institute refers to a distinction in the literature between research and demonstration projects versus routine implementation by appropriate practitioners. Research and demonstration projects are those in which the implementation is either delivered by the researcher or the researcher provides support for the

applications, meta-analysis of intervention studies must be clearly directed toward identification of the characteristics of education practices or programs that are associated with the most positive outcomes, as well as moderators or mediators of those effects, or focus on the identification of factors that are predictive of the most positive outcomes and potentially amenable to intervention. Such meta-analyses go beyond a simple identification of the mean effect found in studies to determine moderators of the effects such as breaking out the effects of (a) specific types of intervention within the broad intervention category that is the focus of the meta-analysis (e.g., Graham & Perin, 2007); (b) variations of a particular intervention (e.g., Cepeda, et al., 2006); (c) age or grade level subgroups (e.g., Wilson, et al., 2003); and (d) relevant population subgroups (e.g., Wilson, et al., 2003). Meta-analysis of correlational relationships can be used to identify the most positive causal mediators of outcomes (e.g., Fan & Chen, 2001; La Paro & Pianta, 2000).[3] For example, Najaka, Gottfredson, and Wilson (2001) conducted a meta-analysis to examine the strength of various predictors (e.g., social skills) to problem behavior in school and determined that bonding to school was the strongest predictor of problem behaviors. Based on this information, researchers might refine existing interventions intended to reduce problem behaviors by developing components that target improving students' relational ties to school.

The Institute does *not* intend to support meta-analyses to draw conclusions about the efficacy or effectiveness of particular interventions or types of interventions. Through the What Works Clearinghouse, the Institute supports activities to summarize evaluations of specific interventions.

As an alternative to secondary data analyses or meta-analyses, applicants may propose a small scale, descriptive study with primary data collection in which they attempt to identify associations between desired outcomes (e.g., student achievement, graduation rate, teacher retention) based on differences in observed education practices. For example, a researcher might propose to conduct detailed, quantifiable observational measures of instructional practices (types of instruction, frequency, duration, under what circumstances), and then use the instructional data in conjunction with child characteristics to predict subsequent student performance. The objective here is to identify what type or combinations of instructional activities are associated with better student outcomes and for which students.

Evidence obtained through a Goal One project of the association between exposure to a program, practice, or policy and better student outcomes has the possibility of being used to support a subsequent application for a Goal Two (Development) or Goal Three (Efficacy and Replication) project.

b. <u>Significance of the project</u>

By addressing the theoretical and empirical rationale for the study and the practical importance of the intervention (e.g., program, practice) that will be examined, Goal One applicants are addressing the significance of their proposal.

c. <u>Methodological requirements</u>

For all applications, including those submitted under Goal One, the proposed research design must be appropriate for answering the research questions or hypotheses that are posed.

(i) Research questions.

Applicants should pose clear, concise hypotheses or research questions.

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implementation beyond what would be typically available if school leaders decided to implement the intervention apart from involvement in any study. Routine implementation is implementation by practitioners that is comparable to what would happen if they were using intervention apart from involvement in a study.

[2] For additional information, see Cooper, H., & Hedges, L. V. (Eds.) (1994). *The Handbook of Research Synthesis*. New York: Russell Sage Foundation; Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis: Applied social research methods series* (Vol. 49). Sage Publications: Thousand Oaks, CA.

[3] For further information, please see W. R. Shadish (1996). Meta-analysis and the exploration of causal mediating processes: A primer of examples, methods, and issues. *Psychological Methods, 1* (1), 47-65.

(ii) Database.

Applicants proposing secondary data analyses should describe clearly the database(s) to be used in the investigation including information on sample characteristics, variables to be used, and ability to ensure access to the database if the applicant does not already have access to it. The database should be described in sufficient detail so that reviewers will be able to judge whether or not the proposed analyses may be conducted with the database. If multiple databases will be linked to conduct analyses, applicants should provide sufficient detail for reviewers to be able to judge the feasibility of the plan. If the applicant does not currently have access to the databases needed for the study, the applicant should provide sufficient documentation (e.g., letters of agreement) to assure reviewers that access can be obtained and the project can be carried out in a timely fashion.

The applicant should describe the primary outcome measures to be used, including reliability and validity. In particular, applicants should provide sufficient information on the construct validity of the proposed measures. For example, if the applicant proposes to use a state database from which the primary outcome measure will be performance on a reading or mathematics achievement measure, the applicant should detail the standardized measure from which the reading or mathematics scores are derived.

Applicants proposing meta-analysis should describe clearly the criteria for including or excluding studies and their rationale, the search procedures for ensuring that a high proportion of the eligible published and unpublished studies will be located and retrieved, the coding scheme and procedures that will be used to extract data from the respective studies, and the procedures for ensuring the reliability of the coding. The applicant should demonstrate that sufficient numbers of studies are available to support the meta-analysis and that the relevant information is reported frequently enough and in a form that allows an adequate database to be constructed. The effect size statistics to be used should be clearly defined along with the associated weighting function, procedures for handling outliers, and any adjustments to be applied (e.g., reliability corrections).

(iii) Primary data collection.

Applicants may propose a Goal One project in which the primary focus is on the collection and analysis of original data. The applicant should carefully describe the sample, measures (including reliability and validity), and procedures proposed for the primary data collection. Because Goal One projects must be designed to predict student outcomes, if observational data are collected, applicants should describe how the data would be collected (e.g., procedures for maintaining inter-observer reliability), coded, and quantified to allow quantitative analyses predicting the relation between what was observed and student outcomes.

Applicants may also propose to collect original data as a supplement to be used with an existing longitudinal database in order to answer the question of interest. In such cases, applicants should describe the sample and how the sample is related to or links to the proposed secondary database, the measures to be used (including information on the reliability and validity of the proposed instruments), and data collection procedures.

(iv) Data analysis.

The applicant must include detailed descriptions of data analysis procedures. Because predictor variables relevant to education outcomes (e.g., student, teacher, or district characteristics) often covary, the Institute expects investigators to utilize the most appropriate state-of-the-art analytic techniques to isolate the possible effects of variables of interest. Analytic strategies should allow investigators to examine mediators and moderators of programs and practices. The relation between hypotheses, measures, independent and dependent variables should be well specified. Strong applications will include an explicit discussion of how exclusion from testing, or missing

data, will be handled within the statistical analyses. Strong applications will propose an approach for comparing hypotheses or models of relationships among variables.

d. Personnel

Competitive applicants will have research teams that collectively demonstrate expertise in: (a) the relevant student outcome (e.g., reading, mathematics, student behaviors); (b) the type of intervention under investigation (e.g., curriculum, program, policy); (c) implementation of, and analysis of results from, the research design that will be employed; and (d) working with teachers, schools, or other education delivery settings that will be employed if original data will be collected.

e. Resources

Competitive applicants will have access to institutional resources that adequately support research.

f. Awards

Typical awards for projects at this level are $100,000 to $350,000 (total cost = direct + indirect costs) per year. For applicants proposing to do primarily secondary data analysis, the maximum duration of the award is 2 years. Applicants proposing to do short-term longitudinal studies may request up to 2 additional years (i.e., the maximum duration of the award is 4 years) and additional funds, but must justify the need for the additional time and funding. The size of the award depends on the scope of the project.

D. Requirements for Goal Two (Development Projects)

Because the requirements for Goal Two are essentially the same across the Institute's research grant topics, a generic description is used in the funding announcement. Consequently, the examples provided may not apply to a particular topic.

a. Purpose of Goal Two (Development)

Through all of its research programs that include the Development goal (Goal Two), the Institute intends to support the development of education interventions – curricula, instructional approaches, technology, and programs. The Institute stresses that Goal Two applications are about development, rather than demonstrations of the efficacy of an intervention. Under Goal Two, the Institute does not intend to support applications that propose to allocate substantial resources for testing the effect of the proposed intervention. For example, under Goal Two, the Institute does not intend to support applications in which the researcher proposes to spend one year developing the intervention and the second and third years testing the effect of the intervention in a significant number of classrooms or schools. Instead, applicants who have an intervention that could be tested for efficacy should apply to Goal Three.

From the Institute's standpoint, a funded development project would be successful if at the end of a two- to three-year development award, the investigators had a fully developed version of the proposed intervention, including prototypes of all materials and products necessary for implementation of the intervention in authentic education delivery settings, and pilot data addressing the feasibility of its implementation in an authentic education delivery setting and the promise of the intervention for generating outcomes the intervention is designed to effect. Feasibility of implementation might be addressed, for example, with data demonstrating that an intervention intended to increase student time on task does so for samples of students exposed to the intervention in the development context. Alternatively, it might be addressed with observational and survey data on the use of the fully developed intervention in a few test sites in authentic education delivery settings like those for which the intervention is intended. The promise of the intervention for achieving outcomes could be addressed, for example, by demonstrating better outcomes for participants with successive iterations of the intervention, better outcomes associated with more participant exposure to the intervention, normatively rare outcomes consistent with the goals of the intervention, post-intervention scores on an outcome measure that are substantially higher than pre-intervention scores on that measure, or data demonstrating that implementation of the intervention is associated with changes in activities and behaviors that are consistent with the theory of change underlying the intervention. The Institute anticipates that investigators with successful development projects would submit proposals to subsequent

competitions for Goal Three (Efficacy and Replication) awards. The pilot data on feasibility of implementation and promise of positive outcomes to be collected under a Goal Two (Development) award are intended to help the Institute and its reviewers determine whether it would be appropriate to fund a proposal to examine the efficacy of the intervention.

b. Requirements for the proposed intervention

Under Goal Two, the Institute invites applications to develop new interventions or further develop interventions that are in the early stages of development (e.g., those that do not have an entire program or product ready to evaluate). It is important for applicants to provide a strong rationale to support the development of the proposed intervention. In essence, applicants are answering the question: *Why is the proposed intervention likely to produce better student outcomes relative to current education practices?*

(i) Context for the proposed intervention.

In strong applications, researchers provide context for the proposed intervention by including data on, or reviewing research describing, the attributes of typical existing practices. Understanding the shortcomings of current practice contributes to the rationale for the proposed intervention.

(ii) Theory of change.

Applicants should clearly describe the intervention and the theory of change for the intervention. For example, how do the features or components of the intervention relate to each other temporally (or operationally), pedagogically, and theoretically (e.g., why does A lead to B)? Applicants should provide a strong theoretical and empirical justification for the design and sequencing of the features or components of the intervention. When applicants clearly describe the theory of change that guides the intervention and the specific features making up the intervention, reviewers are better able to evaluate (a) the relation between the theoretical and empirical foundation for the intervention and the intervention (e.g., is the proposed intervention a reasonable operationalization of the theory?) and (b) the relation between the intervention and the outcome measures (e.g., do the proposed measures tap the constructs that the intervention is intended to address?).

Applicants should explain why the proposed intervention is likely to produce substantially better student outcomes relative to current practice. In addition to providing a clear description of the intervention – particularly, the unique features of the intervention ("active ingredients") that are hypothesized to produce the desired improvement in student outcomes – applicants should describe typical existing practices. A comparison of the proposed intervention with typical practice helps reviewers determine if the proposed intervention has the potential to produce substantially better student outcomes because it is sufficiently different from current practices and has "active ingredients" that appear on the basis of theoretical or empirical reasons to be powerful agents for improving student learning.

(iii) Practical importance.

In the rationale to support the proposed intervention, applicants should address the *practical* importance of the proposed intervention. For example, when the proposed intervention is fully developed, will it have the potential to improve student outcomes in educationally meaningful increments, if it were implemented over the course of a semester or school year? Would the proposed intervention be both affordable for schools and easily implemented by schools (e.g., not involve major adjustments to normal school schedules)?

c. Significance of the project

By describing (a) the intervention (e.g., features, components) and the theory of change for the intervention, (b) the theoretical and empirical support for the proposed intervention, and (c) the practical importance of the intervention, Goal Two applicants are addressing aspects of the significance of their proposal.

d. Methodological requirements

For all applications, including those submitted under Goal Two, the proposed research design must be appropriate for answering the research questions or hypotheses that are posed.

The primary purpose of Goal Two projects is the development of interventions. For Goal Two projects, applicants must clearly address the proposed methods for developing the intervention and testing the feasibility of implementation of the prototype in an authentic education delivery setting. Applicants should describe the systematic process they will use to collect empirical data that will provide feedback for refining the intervention. A major objective of Goal Two projects is to refine and improve upon the initial version of the intervention by implementing it, or components of it, observing its functioning, and making necessary adjustments in the design of the intervention so that it functions more as intended.

Strong applications include clear descriptions of the development activities so that reviewers will understand (a) what will be developed, (b) how it will be developed, and (c) when the development will take place. Applicants should describe what they would measure or observe to determine whether the intervention is working as intended when they are testing the feasibility of successive versions of the intervention. A useful by-product of such testing is a set of fidelity of intervention measures that could be used if the intervention were evaluated in an efficacy trial (see Goal Three).

A timeline that delineates the iterative process of drafting and revising the intervention (e.g., features or components of the intervention, procedures, training activities, and materials) is often a simple way of showing reviewers how research activities will feed into subsequent development (refinement) activities, so that information can be used to make decisions and improvements. A variety of methodological strategies may be employed during this phase. For Development projects, reviewers need to understand the iterative development process to be used in the design and refinement of the proposed intervention.

By the end of a Goal Two project, the Institute expects investigators to have a fully developed intervention and pilot data that address the feasibility of implementing the intervention in authentic education delivery settings as well as the promise of the intervention for generating outcomes the intervention is designed to effect. Feasibility of implementation might be addressed, for example, with evidence demonstrating that the intervention can be implemented with fidelity in a few authentic education delivery settings that represent the type of settings (e.g., classrooms) for which the intervention is intended. Feasibility should be demonstrated on a small sample of users (e.g., teachers, students) who are like those for whom the product is intended and should show that they can utilize or implement the intervention in the way that the developer intends the intervention to be implemented. The promise of the intervention for achieving the intended outcomes could include evidence that performance on outcome measures is progressing in the appropriate direction (e.g., students' post-intervention scores on a curriculum-based test are substantially higher than pre-intervention scores) or data demonstrating that implementation of the intervention is associated with changes in activities and behaviors that are consistent with the theory of change underlying the intervention. Whatever pilot data are proposed, applicants should be aware that (a) no more than 25 percent of the funds may be used to support the collection of pilot data and (b) the review of methodological requirements will focus on methods for developing the intervention as detailed below. The pilot data are not intended to be a test of the efficacy of the intervention.

(i) Sample.

The applicant should define, as completely as possible, the samples and settings that will be used to assess the feasibility and usability of the intervention.

(ii) Research plan.

The applicant must provide a detailed research plan in which they describe the proposed procedures for developing the intervention. Strong applications will include clear descriptions of: (a) what needs to be developed; (b) the procedures for developing the intervention; and (c) the procedures (including sample, measures, and procedures for analyzing data) for determining if the intervention

is functioning as intended (e.g., Does the software program crash when students use it? Are the activities planned for a particular lesson do-able within the allotted time?). Applicants should describe the iterative development process to be used in the design and refinement of the proposed intervention, and plans for acquiring evidence about the operation of the intervention according to the theory of change that they describe. The number of times a component or intervention is revised, implemented, observed, and revised depends on the complexity of the intervention and its implementation. It is helpful if applicants explain: (a) how they define "operating as intended" for the proposed intervention; (b) what data they will collect to determine how the intervention (or component) is operating; (c) how they will use the data they collect to revise the intervention; and (d) what criteria they will use to determine if the intervention (or component) operates as intended.

(iii) Measures.

Goal Two projects typically rely on the collection of process data that can help the researcher refine the intervention and provide insight into the feasibility and usability of the proposed intervention in authentic education delivery settings. Applicants should clearly describe (a) what needs to be observed in order to determine if the intervention is operating as intended and (b) how those observations will be collected. Observational, survey, or qualitative methodologies are encouraged to identify conditions that hinder implementation of the intervention.

e. Personnel

Competitive applicants will have research teams that collectively demonstrate expertise in: (a) the relevant content area (e.g., reading, mathematics, student behaviors); (b) type of intervention to be developed; (c) implementation of, and analysis of results from, the research design that will be employed; and (d) working with schools and other education delivery settings.

An applicant may be or may involve *for-profit entities* in the project. Involvement of the commercial developer or distributor must not jeopardize the objectivity of the research.

f. Resources

Competitive applicants will have access to institutional resources that adequately support research.

g. Additional Considerations

Applicants who previously held or currently hold development (Goal Two) grants with the Institute should describe the results and outcomes of those grants to date. They should indicate whether what was developed has been (or is being) evaluated for efficacy (Goal Three) and if results are available, what the results of those efficacy evaluations have been. In general, the Institute intends to support researchers under Goal Two who can demonstrate their ability to develop interventions that can be used in the field and tested for efficacy. However, the Institute recognizes that there are situations in which researchers may appropriately apply for a second development award to further develop or extend an intervention that was the focus of a previous development project. In such cases, the applicant should also provide a compelling rationale of the need for a second development award.

h. Awards

Typical awards for projects at this level are $150,000 to $500,000 (total cost = direct + indirect costs) per year. Development projects are for a maximum of 3 years. Development costs vary according to the type of intervention that is proposed. Larger awards will be considered. In all cases, the size of the award depends on the scope of the project.

Under Goal Two, no more than 25 percent of the total funds may be used for collection of pilot data.

E. Requirements for Goal Three (Efficacy and Replication Projects)
Because the requirements for Goal Three are essentially the same across the Institute's research grant topics, a generic description is used in the funding announcement. Consequently, the examples provided may not apply to a particular topic.

Under Goal Three, the Institute requests proposals to test the efficacy of fully developed interventions. By *efficacy*, the Institute means the degree to which an intervention has a net positive impact on the outcomes of interest in relation to the program or practice to which it is being compared.

a. Purpose of Goal Three (Efficacy and Replication)
Through all of its research programs that include the Efficacy and Replication goal (Goal Three), the Institute intends to fund efficacy trials to determine whether or not fully-developed interventions – programs, practices, and policies – are effective under specified conditions (e.g., urban schools with a high turnover rate among teachers), and with specific types of students (e.g., English language learners). Results from efficacy projects have less generalizability than results from effectiveness (scale-up) evaluations under Goal Four. The limited generalizability can arise both from the lack of a full range of types of settings and participants in the study, as well as through the intensive involvement of the developers and researchers in the implementation of the intervention. A well-designed efficacy trial provides evidence on whether an intervention **can** work, but not whether it would work if deployed widely. Under Goal Three, applicants may propose an efficacy trial to determine if an intervention will work under specific conditions or a replication trial to determine if an intervention shown to produce a net positive impact in one setting will produce a net positive impact under different conditions (e.g., with a different population of students).

Applicants should use the efficacy and replication trials to determine the conditions, if any, under which an intervention produces meaningful improvement of academic outcomes. For example, if a research team hypothesized that a variation in the delivery of the program would improve the impact of an intervention, the team might propose to randomly assign: (a) one-third of the classrooms to the basic intervention; (b) one third of the classrooms to the variation; and (c) one-third of the classrooms to continue with standard district practices.

Also of interest to the Institute are proposals to compare the impact of two interventions that are based on different theoretical models. In such cases, the purpose might be to compare the efficacy of two well-developed approaches to improving student learning. One advantage to this approach is that, relative to designs in which the comparison group experiences whatever the school or district currently provides (but see the discussion of "business-as-usual" treatments below), the investigator should have better knowledge of the critical components of each intervention and can attempt to create two conditions in which, for example, instruction varies on a number of critical components.

From the Institute's standpoint, a funded Efficacy/Replication project would be *methodologically successful* if at the end of the grant period, the investigators had rigorously evaluated the impact of a clearly specified intervention on relevant student outcomes and under clearly described conditions using a research design that meets (without reservation) the Institute's What Works Clearinghouse standards (http://whatworks.ed.gov), whether or not the intervention is found to improve student outcomes relative to the comparison condition. The Institute would consider methodologically successful projects to be *pragmatically successful* if the rigorous evaluation determined that the intervention has a net positive impact on student outcomes in relation to the program or practice to which it is being compared.

The Institute recognizes that research on children with disabilities often utilizes alternative research designs for determining the causal impact of an intervention due to small populations of children with specific disabilities. In such cases, rigorous single subject designs are appropriate. Requirements for single subject designs are detailed in section 14.E.d.x. Requirements for single subject designs.

b. Requirements for the proposed intervention

Interventions appropriate for study under Goal Three are (1) interventions that are fully developed, have evidence of their feasibility for use in authentic education delivery settings, and empirical evidence of the potential efficacy of the intervention and (2) interventions that are already widely used but have not been rigorously evaluated. Also appropriate for Goal Three applications are proposals to *replicate* the efficacy of an intervention in a different setting. For instance, in a previous study, the applicant could have demonstrated the efficacy of an intervention in a small random assignment trial in an urban school district, and a reasonable next step would be to *replicate* these findings in a rural school district.

(i) Interventions are ready to be evaluated.

Applicants must have an intervention that is fully developed and ready to be evaluated. Applicants who intend to devote a significant part of the project period to developing new components or materials for the intervention or new delivery approaches should apply to Goal Two. Goal Three projects are limited to those interventions that are fully developed.

(ii) Rationale for interventions that are already in wide use.

Applicants must provide a compelling rationale that justifies the Institute's investment in the evaluation of the proposed intervention. As justification for the evaluation of an intervention that is already in wide use, the Institute will accept conceptual arguments of the importance of evaluating the proposed intervention because of its relevance to public policy or current education practice as would be judged by practitioners and policymakers. For example, the proposed intervention may already be widely used but have not been rigorously evaluated (e.g., a commercially distributed program, a specific education policy). To support this argument, applicants might include documentation of the widespread use of the program to justify the proposed efficacy evaluation. By widespread use, the Institute means used across multiple states or in the majority of districts in a single large state or in the majority of schools in two or more large districts. Typically, interventions that fall in this category are commercially produced and distributed.

(iii) Rationale for interventions that are not in wide use.

Applicants must provide a compelling rationale that justifies the Institute's investment in the evaluation of the proposed intervention. Applicants must provide evidence that the intervention can be implemented in authentic education delivery settings – that is, evidence of the feasibility and usability of the proposed intervention in authentic education delivery settings. Applicants should provide a strong rationale justifying the investment in the evaluation of the proposed intervention by including, for example, information on (a) the theoretical foundation on which the intervention was developed, (b) research on related interventions or components of the proposed interventions; or (c) empirical evidence of the potential effect the proposed intervention based on pilot data. Appropriate pilot data include, but are not limited to, evidence of the feasibility of implementation of the intervention and data on outcomes for participants in the intervention that are consistent with the intended effect of the intervention, for example, change scores from pretest to posttest in the direction and magnitude that the intervention is designed to generate.

In essence, the applicant needs to address the question: Why is this intervention likely to produce better student outcomes relative to current practice? In addition, applicants should address the *practical* importance of the proposed intervention. For example, is the intervention sufficiently comprehensive to improve student outcomes on end-of-year assessments? Is there evidence indicating that the proposed intervention is sufficiently different from current practices to potentially improve student outcomes relative to current practices?

(iv) Theory of change.

Applicants should clearly present the theory of change for the proposed intervention by describing the features or components of the intervention and how they relate to each other and to the intended outcomes both temporally (or operationally) and theoretically (e.g., why A leads to B).

When applicants clearly describe the model that guides the intervention and the intervention itself (e.g., specific features or components of the intervention), reviewers are better able to evaluate the relation between the theoretical and empirical foundation for the intervention and the intervention (e.g., is the proposed intervention a reasonable operationalization of the theory?). Reviewers are also better able to evaluate the relation between the intervention and the outcome measures (e.g., do the proposed measures tap the constructs that the intervention is intended to address?).

Some interventions are designed to affect the teaching and learning environment and indirectly affect student outcomes. In such cases, it is important for applicants to be clear in their theory of change to identify the mediators that the intervention is designed to affect and through which student outcomes are intended to be improved.

Strong applications will also include detailed descriptions of what the comparison group experiences. By clearly describing the intervention and the comparable treatment that the comparison group will receive, reviewers are better able to judge whether the intervention is sufficiently different from the comparison treatment so that one might reasonably expect a difference in student outcomes. In addition, reviewers are better able to determine if the proposed fidelity measures and observations of the comparison group are sufficiently comprehensive and sensitive to identify and document critical differences between what the intervention and comparison groups receive.

c. Significance of the project

By describing (a) the intervention (e.g., features, components) and the theory of change for the intervention, (b) the theoretical and empirical support for the proposed intervention, and (c) the practical importance of the intervention, Goal Three applicants are addressing aspects of the significance of their proposal.

d. Methodological requirements

For all applications including those submitted under Goal Three, the proposed research design must be appropriate for answering the research questions or hypotheses that are posed.

(i) Research questions.

Applicants should pose clear, concise hypotheses or research questions.

(ii) Sample.

The applicant should define, as completely as possible, the sample to be selected and sampling procedures to be employed for the proposed study, including justification for exclusion and inclusion criteria. Additionally, the applicant should describe strategies to increase the likelihood that participants will remain in the study over the course of the evaluation (i.e., reduce attrition).

(iii) Research design.

The applicant must provide a detailed research design. Applicants should describe how potential threats to internal and external validity would be addressed. Studies using randomized assignment to treatment and comparison conditions are strongly preferred. When a randomized trial is used, the applicant should clearly state the unit of randomization (e.g., students, classroom, teacher, or school); choice of randomizing unit or units should be grounded in a theoretical framework. Applicants should explain the procedures for assignment of groups (e.g., schools) or participants to treatment and comparison conditions.[4]

[4] For additional information on describing procedures for randomization, see the What Works Clearinghouse document, *Evidence Standards for Reviewing Studies* (p. 6), available at http://www.whatworks.ed.gov/reviewprocess/study_standards_final.pdf.

Only in circumstances in which a randomized trial is not possible may alternatives that substantially minimize selection bias or allow it to be modeled be employed. Applicants proposing to use a design other than a randomized design must make a compelling case that randomization is not possible. Acceptable alternatives include appropriately structured regression-discontinuity designs or other well-designed quasi-experimental designs that come close to true experiments in minimizing the effects of selection bias on estimates of effect size. A well-designed quasi-experiment is one that reduces substantially the potential influence of selection bias on membership in the intervention or comparison group. This involves demonstrating equivalence between the intervention and comparison groups at program entry on the variables that are to be measured as program outcomes (e.g., student achievement scores), or obtaining such equivalence through statistical procedures such as propensity score balancing or regression. It also involves demonstrating equivalence or removing statistically the effects of other variables on which the groups may differ and that may affect intended outcomes of the program being evaluated (e.g., demographic variables, experience and level of training of teachers, motivation of students). Finally, it involves a design for the initial selection of the intervention and comparison groups that minimizes selection bias or allows it to be modeled. For example, a very weak quasi-experimental design that would *not* be acceptable as evidence of program efficacy would populate the intervention condition with teachers who volunteered for the program to be evaluated, and would select comparison teachers who had the opportunity to volunteer but did not. In contrast, an acceptable design would select teachers in one particular geographical area of a city to be in the intervention, whereas teachers in another geographical area, known to be demographically similar, would be selected to be in the comparison condition. In the former case, self-selection into the intervention is very likely to reflect motivation and other factors that will affect outcomes of interest and that will be impossible to equate across the two groups. In the latter case, the geographical differences between the participants in the two groups would ideally be unrelated to outcomes of interest, and in any case, could be measured and controlled for statistically.[5]

(iv) Power.

Applicants should clearly address the power of the evaluation design to detect a reasonably expected and minimally important effect. When justifying what constitutes a reasonably expected effect, applicants should indicate clearly (e.g., including the statistical formula) how the effect size was calculated.

Many evaluations of education interventions are designed so that clusters or groups of students, rather than individual students, are randomly assigned to treatment and comparison conditions. In such cases, the power of the design depends in part on the degree to which the observations of individuals within groups are correlated with each other on the outcomes of interest. For determining the sample size, applicants need to consider the number of clusters, the number of individuals within clusters, the potential adjustment from covariates, the desired effect, the intraclass correlation (i.e., the variance between clusters relative to the total variance between and within clusters), and the desired power of the design (note, other factors may also affect the determination of sample size, such as using one-tailed vs. two-tailed tests, repeated observations, attrition of participants, etc.).[6] Strong applications will include empirical justification for the intraclass correlation and anticipated effect size used in the power analysis.

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[5]For more information, see Shadish, W. R., Cook, T. D., and Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton Mifflin Company.

[6] For more information, see Donner, A., & Klar, N. (2000). *Design and Analysis of Cluster Randomization Trials in Health Research*. New York: Oxford University Press; Murray, D. M. (1998). *Design and Analysis of Group-Randomized Trials*. New York: Oxford University Press; W.T. Grant Foundation & University of Michigan, http://sitemaker.umich.edu/group-based/optimal_design_software.

(v) Measures.

Measures of student outcomes may include researcher developed measures and other measures that are closely aligned with the proposed intervention. However, applicants must also include relevant measures of student outcomes that are of practical interest to educators. For example, proposals to evaluate interventions to improve academic outcomes should include measures such as grades, standardized measures of student achievement, or state end-of-course exams. Proposals to evaluate interventions to improve behavioral outcomes should include practical measures of behaviors that are relevant to schools, such as attendance, tardiness, drop-out rates, disciplinary actions, or graduation rates. The applicant should provide information on the reliability, validity, and appropriateness of proposed measures. In strong applications, investigators will make clear how the skills or content the intervention is designed to address are captured in the various measures that are proposed.

Some interventions are designed to change directly the teaching and learning environment and indirectly affect student outcomes. In such cases, applicants must provide measures of student outcomes, as well as measures of the primary mediators (i.e., proximal outcomes).

(vi) Fidelity of implementation of the intervention.

The applicant should specify how the implementation of the intervention would be documented and measured. In strong applications, investigators will make clear how the fidelity measures capture the critical features of the intervention. Investigators should propose research designs that permit the identification and assessment of factors impacting the fidelity of implementation.

(vii) Comparison group, where applicable.

Comparisons of interventions against other conditions are only meaningful to the extent that one can tell what the comparison group receives or experiences. Applicants should compare intervention and comparison groups on the implementation of critical features of the intervention so that, for example, if there is no observed difference between intervention and comparison student outcomes, they can determine if key elements of the intervention were also provided in the comparison condition (i.e., a lack of distinction between the intervention treatment and the comparison treatment).

In evaluations of education interventions, individuals in the comparison group typically receive some kind of treatment; rarely is the comparison group a "no-treatment" control. For some evaluations, the primary question is whether the treatment is more effective than a particular alternative treatment. In such instances, the comparison group receives a well-defined treatment that is usually an important comparison to the target intervention for theoretical or pragmatic reasons. In other cases, the primary question is whether the treatment is more effective than what is generally available and utilized in schools. In such cases, the comparison group might receive what is sometimes called "business-as-usual." That is, the comparison group receives whatever the school or district is currently using or doing in a particular area. Business-as-usual generally refers to situations in which the standard or frequent practice across the nation is a relatively undefined education treatment. However, business-as-usual may also refer to situations in which a branded intervention (e.g., a published curriculum or program) is implemented with no more support from the developers of the program than would be available under normal conditions. In either case, *using a business-as-usual comparison group is acceptable.* When business-as-usual is one or another branded intervention, applicants should specify the treatment or treatments received in the comparison group. In all cases, applicants should account for the ways in which what happens in the comparison group is important to understanding the net impact of the experimental treatment. As noted in the preceding paragraph, in strong applications, investigators propose strategies and measures for comparing the intervention and comparison groups on key features of the intervention.

The purpose here is to obtain information useful for *post hoc* explanations of why the experimental treatment does or does not improve student learning relative to the counterfactual.

Finally, the applicant should describe strategies they intend to use to avoid contamination between treatment and comparison groups. Applicants do not necessarily need to randomize at the school level to avoid contamination between groups. Applicants should explain and justify their strategies for reducing contamination.

(viii) Mediating and moderating variables.

In efficacy studies, the Institute expects researchers to examine relevant mediating and moderating factors. Observational, survey, or qualitative methodologies are encouraged as a complement to experimental methodologies to assist in the identification of factors that may explain the effectiveness or ineffectiveness of the intervention. Mediating and moderating variables that are measured in the intervention condition that are also likely to affect outcomes in the comparison condition should be measured in the comparison condition (e.g., student time-on-task, teacher experience/time in position).

The evaluation should be designed to account for sources of variation in outcomes across settings (i.e., to account for what might otherwise be part of the error variance). Applicants should provide a theoretical rationale to justify the inclusion (or exclusion) of factors/variables in the design of the evaluation that have been found to affect the success of education programs (e.g., teacher experience, fidelity of implementation, characteristics of the student population).

Efficacy and replication evaluations should demonstrate the conditions and critical variables that affect the success of a given intervention. The most scalable interventions are those that can produce the desired effects across a range of education contexts.

(ix) Data analysis.

All proposals must include detailed descriptions of data analysis procedures. For quantitative data, specific statistical procedures should be described. The relation between hypotheses, measures, independent and dependent variables should be clear. For qualitative data, the specific methods used to index, summarize, and interpret data should be delineated.

Most evaluations of education interventions involve clustering of students in classes and schools and require the effects of such clustering to be accounted for in the analyses, even when individuals are randomly assigned to condition. Such circumstances generally require specialized multilevel statistical analyses using computer programs designed for such purposes. Strong applications will provide sufficient detail for reviewers to judge the appropriateness of the data analysis strategy. For random assignment studies, applicants need to be aware that typically the primary unit of analysis is the unit of random assignment.

(x) Requirements for single subject designs.

By single-subject designs, the Institute refers to experimental studies using reversal or multiple baseline or interrupted time series designs intended to demonstrate a causal relationship between two variables using a small number of participants or cases. The Institute is not referring to descriptive case studies.

(1) ***Sample.*** Applicants must define the criteria used for selecting participants, the process for selecting participants, and the critical features of the physical setting from which participants are recruited with sufficient detail to allow other researchers to identify similar individuals from similar settings. Defining selection criteria typically requires specifying a particular disability, the measurement instrument, and criterion used to identify the disability.

(2) ***Intervention***. In addition to meeting the requirements for interventions listed above in section E.B.i-iv., *Requirements for proposed intervention*, applicants must describe the intervention in sufficient detail to allow other researchers to reliably replicate the intervention. Applicants must clearly specify how, when, and under what conditions the intervention will be implemented to demonstrate how the intervention was systematically manipulated and under the control of the researcher.

(3) ***Fidelity of implementation***. Applicants must describe how fidelity of intervention implementation will be measured, the frequency of assessments, and what degree of variation in treatment fidelity will be accepted over the course of the study.

(4) ***Baseline and comparison conditions***. The majority of single-subject research studies are likely to compare the effects of an intervention with performance during the baseline or comparison condition. Applicants must describe the baseline or comparison conditions in sufficient detail to document what can be characterized as a stable pattern of behavior and to allow other researchers to replicate the baseline condition.

(5) ***Measures***. Measures of student outcomes may include researcher developed measures and other measures that are closely aligned with the proposed intervention. Applicants must identify and operationally describe the dependent variables (DVs) and outcome measures, provide technical information on the reliability and validity of the measures, detail procedures for collecting observations, and where applicable, specify procedures for determining inter-observer reliability or agreement (e.g., Kappa) associated with each DV and monitoring inter-observer reliability during the study and over both baseline and treatment conditions.

(6) ***Design and analysis***. Applicants must provide a detailed research design and describe how the research design demonstrates experimental control and addresses common threats to internal and external validity. Applicants should consider the anticipated size of the intervention effect, variability in response to treatment within participants across time, variability in response to treatment between subjects, and the number of replications. In essence, what criteria will the applicant use to demonstrate a functional relationship between manipulation of the intervention and the change in the outcomes, and to determine if the response to the treatment is large enough and sufficiently replicated to support a causal conclusion. Furthermore, applicants must address how intervention effects would be generalizable. Applicants are expected to describe what statistical procedures (e.g., time series analyses), if any, will be employed to determine if the change is significant.

e. Personnel

Competitive applicants will have research teams that collectively demonstrate expertise in: (a) the relevant content area (e.g., reading, mathematics, student behaviors); (b) the type of intervention being evaluated (e.g., curriculum, teacher professional development, policy); (c) implementation of, and analysis of results from, the research design that will be employed; and (d) working with schools and other education delivery settings.

For Goal Three projects, an applicant may be or may involve developers or distributors (*including for-profit entities*) in the project, from having them as full partners in its proposal to using off-the-shelf training materials without involvement of the developer or distributor. Involvement of the developer or distributor must not jeopardize the objectivity of the evaluation.

f. Resources

Competitive applicants will have access to institutional resources that adequately support research activities and access to schools in which to conduct the research. Strong applications will document the availability

and cooperation of the schools or other education delivery settings that will be required to carry out the research proposed in the application via a letter of support from the education organization.

g. Awards

Typical awards for projects at this level will be $250,000 to $750,000 (total cost = direct + indirect costs) per year for a maximum of 4 years. Larger budgets will be considered if a compelling case can be made for such support. The size of the award depends on the scope of the project.

F. Requirements for Goal Four (Scale-up Evaluations)

Because the requirements for Goal Four are essentially the same across the Institute's research grant topics, a generic description is used in the funding announcement. Consequently, the examples provided may not apply to a particular topic.

a. Purpose of Goal Four (Scale-up)

Through all of its research programs that include the Scale-up Evaluations goal (Goal Four), the Institute intends to support effectiveness evaluations of interventions - programs, practices, and policies - to determine whether or not fully developed interventions are effective when they are implemented under conditions that would be typical if a school district or other education delivery setting were to implement them (i.e., without special support from the developer or the research team) across a variety of conditions (e.g., different student populations, different types of schools). The key differences between Scale-up Evaluations (Goal Four) and Efficacy Evaluations (Goal Three), as the Institute uses these terms, have to do with the delivery of the intervention and the diversity of the sample. Scale-up Evaluations require that the intervention be implemented at a distance from the researcher/developer of the intervention. That is, the researchers must not be heavily involved in making the intervention work. The intervention must be implemented in the school or other authentic education setting, as it would be if the school, or entity, had purchased and implemented the intervention on its own without any involvement in a research study. Second, Scale-up Evaluations require sufficient diversity in the sample of schools, classrooms, or students to ensure appropriate generalizability. Scale-up Evaluations typically require a larger sample than an Efficacy Evaluation. For Scale-up Evaluations, the primary question of interest is, "Does this intervention produce a net positive increase in student learning and achievement relative to the control group?" As is true for Goal Three studies, for Goal Four studies, depending on the research question of interest, the control group may receive a well-defined alternative treatment, or may receive whatever programs and practices are already currently available and utilized by schools (business-as-usual control group). Finally, the Institute invests in Scale-up Evaluations for interventions that have strong prior evidence of the efficacy of the intervention.

b. Requirements for the proposed intervention

To be considered for Goal Four awards, applicants must provide a clear rationale for the *practical* importance of the intervention. Applicants should address three questions related to practical importance. (1) Is the intervention likely to produce educationally meaningful effects on outcomes that are important to educational achievement (e.g., grades, achievement test scores) and, therefore, are of interest to parents, teachers, and education decision makers? (2) Is the intervention reasonably affordable to schools and other education delivery entities? (3) Is the intervention designed so that it is feasible for schools and other education delivery entities to implement the intervention? In addition, applicants should clearly describe the components of the intervention. Interventions appropriate for study under Goal Four are interventions that are fully developed and have strong evidence of the efficacy of the program on a limited scale.

(i) Strong evidence of educationally meaningful effects.

Applicants must provide *strong* evidence of the efficacy of the program as implemented on a small scale to justify the proposal to conduct a large-scale evaluation of the effectiveness of the intervention. As an example of strong evidence of efficacy, an applicant might describe the results of two or more small scale, rigorously conducted evaluations using random assignment to intervention and comparison conditions in which the efficacy of the intervention is demonstrated with different populations (e.g., urban and rural school districts). Alternatively, a single efficacy

evaluation might have involved schools from more than one district and included a diverse population of teachers and students and alone could constitute sufficient evidence of the efficacy of the intervention. Importantly, the evidence of efficacy must be based on the results of randomized field trials, or well-designed quasi-experimental evaluations.

Evidence for efficacy from single-subject experimental designs would involve multiple studies in different settings that demonstrate causal effects.

Strong applications will include information on the size and statistical significance of the effects that were obtained through efficacy trials. Effect sizes and confidence limits should typically be calculated based on a unit of analysis that is the same as the unit of random assignment. For example, the results of an efficacy trial in which classrooms were assigned to conditions should be analyzed based on classroom means rather than results from individual students. Applicants should indicate clearly (e.g., including the statistical formula) how the effect size was calculated when they use effect sizes as part of the rationale for justifying their intervention. Furthermore, information on effect sizes is more useful to reviewers when sufficient context for interpreting the effect sizes is provided.

(ii) Feasible implementation.

The materials, training procedures, organizational arrangements, and all other aspects of the intervention must be developed to the point where the intervention is ready to be implemented under real-world circumstances in a real-world way. Strong applications will provide reviewers with sufficient information to evaluate whether implementation of the intervention is feasible for schools and other education entities under normal conditions (i.e., without any support from the researchers or developers of the intervention that would not typically be available to entities wanting to implement the intervention outside of a research study). For example, applicants might include results from prior efficacy trials indicating the degree of support provided for the implementation of the intervention and the level of fidelity attained across classrooms or schools.

(iii) Description of the intervention.

All applicants should clearly describe the intervention (e.g., features, components). When applicants clearly describe the intervention, reviewers are better able to evaluate the relation between the intervention and the outcome measures (e.g., do the proposed measures tap the constructs that the intervention is intended to address?). Strong applications will also include detailed descriptions of what the comparison group experiences. By clearly describing the components of the intervention and the comparable treatment (e.g., training program) that the comparison group will receive, reviewers are better able to judge whether (a) the intervention is sufficiently different from the comparison treatment so that one might reasonably expect a difference in student outcomes, and (b) fidelity measures and observations of the comparison group are sufficiently comprehensive and sensitive to identify and document critical differences between the intervention and comparison conditions.

Applicants may use Appendix B to include up to 10 pages of examples of materials to be used by participants (e.g., training materials for teachers, computer screens depicting how information is presented to students, examples of test items for a proposed assessment). Applicants should be aware that all narrative text describing the theoretical background, empirical support, components of the proposed intervention, or any other aspect of the proposal must be included within the 25-page project narrative. The only materials that are allowed in Appendix B are examples of the materials that are used by or presented to participants in the intervention or assessment.

c. Implementation of the intervention

One goal of scale-up evaluations of interventions is to determine if programs are effective when the developers of the program do not provide any more support than would be available under normal conditions. That is, the program should be implemented as it would be if the schools or other entities that are delivering the program were to obtain the program on their own and decide to use it apart from participation in any research and evaluation study. A second goal is to determine if programs implemented under these conditions are effective in a variety of settings. Interventions that are effective at scale are those that can produce the desired effects across a range of education contexts. For Goal Four, the applicant should detail the conditions under which the intervention will be implemented – including explicitly detailing what involvement the researcher/developer will have in the implementation of the intervention and justifying this level of involvement – and provide procedures that will capture the conditions and critical variables that affect the success of a given intervention.

d. Significance of the project

By addressing the implementation of the intervention and the requirements for the intervention, Goal Four applicants are addressing the significance of their proposal.

e. Methodological requirements

For all applications, including those submitted under Goal Four, the proposed research design must be appropriate for answering the research questions or hypotheses that are posed.

For Goal Four projects, all of the methodological requirements listed under Goal Three apply to Goal Four projects.

In addition to the Goal Three methodological requirements, for Goal Four projects, strong applications will include a Cost-Feasibility analysis to assess the financial costs of program implementation and assist schools in understanding whether implementation of the program is practicable given their available resources. Data should be collected on the monetary expenditures for the resources that are required to implement the program. Financial costs for personnel, facilities, equipment, materials, and other relevant inputs should be included. Annual costs should be assessed to adequately reflect expenditures across the lifespan of the program. The Institute is *not* asking applicants to conduct an economic evaluation of the program (e.g., cost-benefit, cost-utility, or cost-effectiveness analyses), although applicants may propose such evaluation activities if desired.[7]

f. Personnel

Competitive applicants will have research teams that collectively demonstrate expertise in: (a) the relevant content area (e.g., reading, mathematics, student behaviors); (b) the type of intervention proposed (e.g., program, practice, policy); (c) implementation of, and analysis of results from, the research design that will be employed; and (d) working with schools and other education delivery settings.

An applicant may involve developers or distributors (*including for-profit entities*) of the intervention in the project, from having the developers as full partners in its proposal to using off-the-shelf teacher training materials without involvement of the developer or publisher. However, involvement of the developer or distributor must not jeopardize the objectivity of the evaluation. Strong applications will carefully describe the role, if any, of the developer/distributor in the intervention. Developers may not provide any training or support for the implementation that is not normally available to users of the intervention. Applicants should describe how objectivity in the evaluation would be maintained. Strong applications will assign responsibility

[7] For additional information on how to calculate the costs of a program or conduct an economic evaluation, applicants might refer to Levin, H.M., & McEwan, P.J. (2001). *Cost-Effectiveness Analysis*. 2nd Ed. Thousand Oaks, CA: Sage Publications.

for random assignment to condition, data collection, and data analyses to individuals who were *not* involved in the development of the intervention and are not involved in the distribution of the intervention.

g. Resources

Competitive applicants will have access to institutional resources that adequately support research activities and access to schools in which to conduct the research. Strong applications will document the availability and cooperation of the schools or other education delivery settings that will be required to carry out the research proposed in the application via a letter of support from the education organization.

h. Awards

The scope of Goal Four projects may vary. A smaller project might involve several schools within a large urban school district in which student populations vary in terms of SES, race, and ethnicity. A larger project might involve large numbers of students in several school districts in different geographical areas.

Typical awards for projects at this level will be $500,000 to $1,200,000 (total cost = direct + indirect costs) per year for a maximum of 5 years. Larger budgets will be considered if a compelling case can be made for such support. The size of the award depends on the scope of the project.

G. Requirements for Goal Five (Measurement)

Across the Institute's research programs, the Measurement goals differ in purpose. Requirements described below apply to topics in the Special Education Research Grants Program.

a. Purpose of Goal Five (Measurement)

Applications appropriate for consideration under Goal Five are: (a) proposals to develop and validate new assessments; (b) proposals to adapt and/or validate existing assessments; (c) proposals to adapt and/or validate assessments originally designed and used for research purposes for broader use in instructional settings; (d) proposals to develop or test new techniques for assessment or analysis of assessment data in the context of state accountability standards and systems; and (e) proposals to develop assessments used to certify or assess professionals (e.g., teachers, related service providers) and/or validate such assessments against student outcomes. Proposed assessments must meet the specific requirements detailed under the topic to which the proposal is submitted.

Under Goal Five, the Institute intends to support research on assessments intended for use by practitioners for purposes of screening, diagnosis, progress monitoring, outcome assessment, and assessment of teachers or other service providers, and research on assessment for accountability for students with disabilities.

(i) Screening.

Screening involves brief assessments conducted with all children at the beginning of the school year and targets skills that are strongly predictive of important future outcomes. The goal of screening is to identify children who are at risk of failure and likely to need additional or alternative forms of instruction either to supplement or supplant conventional instruction.

(ii) Diagnosis.

Diagnosis refers to more in-depth assessment of strengths and weaknesses in a particular domain, and should not be confused with assessment for the purpose of labeling children with disabilities. The goal of diagnostic assessment is to provide teachers with a profile of skills and deficits to guide instruction.

(iii) Progress monitoring.

Progress monitoring is assessment of students' performance on critical criterion performance skills a minimum of three times a year but typically more frequently (e.g., weekly, monthly, or quarterly) using alternate forms of a test. The purpose of progress monitoring is to estimate rates of improvement, to identify children who are not demonstrating adequate progress and, therefore,

require supplementary instruction. Progress monitoring assessment provides information on a student's performance on an ongoing basis (e.g., weekly data on whether students are benefiting from a particular type of instruction). This information can be used to compare different types of instruction for a particular child on a frequent basis.

Under Goal 5, applicants may propose to develop and/or validate a progress-monitoring instrument**.** *Applicants who want to test whether implementation of a progress monitoring system or instrument improves student outcomes must apply under the appropriate intervention evaluation goal (Goal 3 or Goal 4).*

(iv) Outcome assessment.
Outcome assessment is designed to determine if students have achieved or not achieved grade-level performance or if their performance has improved or not improved.

(v) Assessments of teachers and other service providers.
Under the Early Intervention, and Early Childhood Special Education, Teacher Quality, and Related Services research topics, applicants may propose to develop assessments of teacher or related service provider practices and validate them against student outcomes, as well as to develop and/or validate assessments used to certify professionals (e.g., teacher certification exams). Please check specific requirements for each topic.

(vi) Assessment for accountability The Institute is also interested in applications in which researchers propose to address the use of assessment for accountability purposes. Applicants interested in this assessment focus should refer to the discussion of assessment for accountability in the Systemic Interventions and Policies for Special Education program.

b. <u>Requirements for the proposed assessment</u>

(i) Rationale.
Applicants should provide a compelling rationale to support the development of the proposed assessment. Reviewers will consider (a) the strength of the theoretical foundation for the proposed assessment, (b) the existing empirical evidence supporting the proposed assessment, and (c) whether the proposed assessment duplicates existing assessments. In developing these assessments, researchers should keep in mind the pragmatic constraints (e.g., number of students, limited class time, time required to train teachers to use the assessments, costs) that teachers and administrators will consider to determine whether the instrument is a viable option for use in classrooms and other education delivery settings.

(ii) Description of the assessment.
Applications should provide sufficient description of the proposed assessment and how it could be utilized within education delivery settings for reviewers to judge the practicality of the proposed assessment for instructional purposes. Applicants should clearly describe the components of the assessment (e.g., specific knowledge and skills that the instrument is designed to tap) in sufficient detail to allow reviewers to evaluate relations between the theoretical and empirical foundations for the assessment and the assessment itself (e.g., does the proposed assessment capture critical skills?), and whether the proposed assessment will meet the needs for which it is intended. Applications to examine the use of assessments for accountability purposes should provide sufficient description of the proposed assessment instrument or technique in the context of state and federal accountability policies so that reviewers are able to judge the merits and feasibility of the proposed research on assessment for accountability.

Applicants may use Appendix B to include up to 10 pages of examples of materials to be used by participants (e.g., training materials for teachers, computer screens depicting how information is presented to students, examples of test items for a proposed assessment).

Applicants should be aware that all narrative text describing the theoretical background, empirical support, components of the proposed assessment, or any other aspect of the proposal must be included within the 25-page project narrative. The only materials that are allowed in Appendix B are examples of the materials that are used by or presented to participants in the assessment.

c. Significance of the project

By describing the theoretical and empirical support for the proposed assessment, the practical utility of the assessment, and the components of the assessment, applicants are addressing aspects of the significance of their proposal.

d. Methodological requirements

For all applications, including those submitted under Goal Five, the proposed research design must be appropriate for answering the research questions or hypotheses that are posed. There are two aspects of the research methodology that applicants must clearly address: (a) the proposed methods for developing the assessment, and (b) the proposed research methods for obtaining evidence of the *validity and reliability* of the instrument.

(i) Assessment development.

Applicants must detail the proposed procedures for developing the assessment. Strong applications will include descriptions of: (a) the procedures for determining the constructs that will be "tapped" by the instrument; (b) the procedures for selecting items to be used in the assessment, including assessing difficulty of selected items, and obtaining representative responses to items; and (c) the process for determining the administrative procedures for conducting the assessment (e.g., mode of administration, inclusion/exclusion of individual test takers, and whether make-ups or alternative administrative conditions will be allowed). Applicants should describe the process they will use to collect empirical data that will provide feedback for refining specific components of the assessment. *Applicants should describe the iterative development process to be used in the design and refinement of the proposed measurement tool.*

(ii) Assessment evaluation.

Applicants must clearly describe the research plans for determining the validity and reliability of the instrument. Applicants should describe the characteristics, size, and analytic adequacy of samples to be used in each study, including justification for exclusion and inclusion criteria. Applicants should describe detailed planned analytic methods (e.g., statistical and/or psychometric models), plans for treatment of missing responses, and criteria for interpreting results.

Applicants proposing to use existing datasets (e.g., state or local student achievement databases) to validate an assessment should explicitly address how exclusion from testing, or missing data, will be handled within the statistical analysis. If multiple data sets will be linked for the proposed analyses, applicants should provide sufficient detail for reviewers to judge the feasibility of the plan.

Applicants proposing to collect original data should carefully describe the sample, measures (including reliability and validity), and procedures proposed for the primary data collection. If observational data are collected, applicants should describe how the data would be collected (e.g., procedures for maintaining inter-observer reliability), coded, and analyzed.

Applicants proposing to develop and/or validate assessments of teachers, education leaders, or education systems must validate the assessments against student outcomes.

e. Personnel
Competitive applicants will have research teams that collectively demonstrate expertise in (a) content area, (b) assessment, (c) implementation of, and analysis of results from, the research design that will be employed, and (d) working with teachers, schools, or other education delivery settings in which the proposed assessment might be used.

f. Resources
Competitive applicants will have access to institutional resources that adequately support research activities and access to schools in which to conduct the research. Applicants should also demonstrate access to statistical and measurement resources and technical expertise needed for developing and studying assessment instruments and techniques.

g. Awards
Typical awards under Goal Five will be $150,000 to $400,000 (total cost = direct + indirect costs) per year for up to 4 years. Larger budgets will be considered if a compelling case can be made for such support. The size of award depends on the scope of the project.

PART IV GENERAL SUBMISSION AND REVIEW INFORMATION

15. MECHANISM OF SUPPORT

The Institute intends to award grants pursuant to this request for applications. The maximum length of the award period varies by goal. The maximum award length for each goal ranges from two to five years. Please see details for each goal in Part III Requirements of the Proposed Research section of the announcement.

16. FUNDING AVAILABLE

The size of the award depends on the scope of the project. Please see specific details in Part III Requirements of the Proposed Research section of the announcement. Although the plans of the Institute include the research programs (topics) described in this announcement, awards pursuant to this request for applications are contingent upon the availability of funds and the receipt of a sufficient number of meritorious applications. The number of projects funded under a specific topic and goal depends upon the number of high quality applications submitted to that topic and goal. The Institute does not have plans to award a specific number of grants under each particular topic and goal.

17. ELIGIBLE APPLICANTS

Applicants that have the ability and capacity to conduct scientifically valid research are eligible to apply. Eligible applicants include, but are not limited to, non-profit and for-profit organizations and public and private agencies and institutions, such as colleges and universities.

18. DESIGNATION OF PRINCIPAL INVESTIGATOR

The applicant institution is responsible for identifying the Principal Investigator. The Principal Investigator is the individual who has the authority and responsibility for the proper conduct of the research, including the appropriate use of federal funds and the submission of required scientific progress reports. An applicant institution may elect to designate more than one Principal Investigator. In so doing, the applicant institution identifies them as individuals who **share the authority and responsibility** for leading and directing the research project intellectually and logistically. All Principal Investigators will be listed on any grant award notification. However, institutions applying for funding must designate a single point of contact for the project. The role of this person is primarily for communication purposes on the scientific and related budgetary aspects of the project and should be listed as the Principal Investigator. All other Principal Investigators should be listed as Co-Principal Investigators.

19. SPECIAL REQUIREMENTS

Research supported through this program must be relevant to U.S. schools.

Recipients of awards are expected to publish or otherwise make publicly available the results of the work supported through this program. The Institute asks IES-funded investigators to submit voluntarily to the Educational Resources Information Center (ERIC) an electronic version of the author's final manuscript upon acceptance for publication in a peer-reviewed journal, resulting from research supported, in whole or in part, by the Institute. The author's final manuscript is defined as the final version accepted for journal publication, and includes all modifications from the peer review process.

Applicants should budget for one meeting each year in Washington, DC, with other grantees and Institute staff for a duration of up to 3 days of meetings. At least one project representative should attend the three-day meeting.

The Institute anticipates that the majority of the research funded under this announcement will be conducted in field settings. Hence, the applicant is reminded to apply its negotiated off-campus indirect cost rate, as directed by the terms of the applicant's negotiated agreement.

Research applicants may collaborate with, or be, for-profit entities that develop, distribute, or otherwise market products or services that can be used as interventions or components of interventions in the proposed research activities. Involvement of the developer or distributor must not jeopardize the objectivity of the evaluation.

Applicants may propose studies that piggy-back onto an existing study (i.e., requires access to subjects and data from another study). In such cases, the principal investigator of the existing study must be one of the members of the research team applying for the grant to conduct the new project.

The Institute strongly advises applicants to establish a written agreement among all key collaborators and their institutions (e.g., principal and co-principal investigators) regarding roles, responsibilities, access to data, publication rights, and decision-making procedures within three months of receipt of an award.

20. LETTER OF INTENT

A. Content

A letter indicating an applicant's intent to submit an application is optional, but encouraged, for each application. The letter of intent form must be submitted electronically by the date listed in this document, using the instructions provided at: https://ies.constellagroup.com.

The letter of intent should include:

- Descriptive title;
- Topic and goal that the applicant will address;
- Brief description of the proposed project;
- Name, institutional affiliation, address, telephone number and e-mail address of the principal investigator(s);
- Name and institutional affiliation of any key collaborators and contractors;
- Duration of the proposed project;
- Estimated budget request for each year; and
- Total budget request.

B. Format and Page Limitation

The project description should be single-spaced and should not exceed one page (about 3,500 characters). Although the letter of intent is optional, is not binding, and does not enter into the review of a subsequent application, the information that it contains allows Institute staff to estimate the potential workload to plan the review.

21. APPLICATION PACKAGE AVAILABLE ON GRANTS.GOV

A. Date Application Package Is Available On GRANTS.GOV

The application form approved for use in the competitions specified in this RFA is the government-wide SF424 Research and Related (R&R) Form (OMB Number 4040-0001).
Application forms and instructions for the electronic submission of applications will be available for the programs of research listed in this RFA from the following web site:

http://www.Grants.gov/

by the following dates:

Summer Application Forms Available on	April 28, 2008
Fall Application Forms Available on	August 4, 2008

B. Download Correct Application Package

a. CFDA number

Applicants must first search by the CFDA number for each IES Request for Applications without the alpha suffix to obtain the correct downloadable Application Instructions and Application Package. For the Special Education Research Request for Applications, applicants must search on: **CFDA 84.324**.

b. Special Education Research Application Instructions and Application Package

The Grants.gov search on CFDA 84.324 will yield more than one application package. For the Special Education Research Request for Applications (i.e., the research topics listed in this Request for Applications), applicants will be able to download packages marked:

CFDA 84-324A2009-1 Special Education Research Application Instructions and Application Package (June 2008 deadline) and

CFDA 84-324A2009-2 Special Education Research Application Instructions and Application Package (October 2008 deadline).

An applicant must download the application package designated for the competition and deadline date to which the applicant wishes to apply or the application will be submitted to the wrong competition. Although the two packages are similar, only CFDA 84-324A2009-1 can be used to apply in June and only CFDA 84-324A2009-2 can be used to apply in October.

22. SUBMISSION PROCESS AND DEADLINE

Applications must be submitted **electronically by 4:30 p.m**., **Washington, DC time** on the application deadline date, using the ED standard forms and the instructions provided on the Grants.gov website.

Potential applicants should check the Grants.gov site for information about the electronic submission procedures that must be followed and the software that will be required.

23. APPLICATION CONTENT AND FORMATTING REQUIREMENTS

A. Overview

All of the instructions and requirements regarding (a) submission of the application, (b) application page limits, (c) acceptable format, and (d) necessary attachments (.PDF files) will be provided in the **Application Instructions** document for this competition that can be found under the "For Applicants -- Apply for Grants" link of Grants.gov. Also, all of the required forms will be provided in the **Application Package** that accompanies the Application Instructions.

In this section, the Institute provides instructions regarding the content of the (a) project summary/abstract, (b) project narrative, (c) bibliography and references cited, (d) biographical sketches of senior/key personnel, (e) narrative budget justification (f) subaward budgets, (g) Appendix A, (h) Appendix B, (i) human subjects narrative, and (j) additional forms. The instructions below will be reiterated in the Application Instructions document for this competition, which will be available, as noted above, under the "For Applicants -- Apply for Grants" link of Grants.gov.

B. General Format Requirements

Margin, format, and font size requirements apply to the project summary, project narrative, bibliography, biographical sketches, narrative budget justification, Appendix A, and Appendix B. To ensure that the text is easy for reviewers to read and that all applicants have the same amount of available space in which to describe their projects, applicants must adhere to the type size and format specifications for the entire narrative including footnotes. **It is very important that applicants review carefully the "Application Format Requirements" outlined in the *Fiscal Year 2009 Application Package Highlights,*** which will be part of the application instructions, to be available on http://www.Grants.gov.

a. Page and Margin Specifications

For the purposes of applications submitted under this RFA, a "page" is 8.5 in. x 11 in., on one side only, with 1 inch margins at the top, bottom, and both sides.

b. Spacing

Text must be single spaced in the narrative.

c. Type Size (Font Size)

Type must conform to the following three requirements:

- The height of the letters must not be smaller than a type size of 12 point.
- Type density, including characters and spaces, must be no more than 15 characters per inch (cpi). For proportional spacing, the average for any representative section of text must not exceed 15 cpi.
- Type size must yield no more than 6 lines of type within a vertical inch.

Applicants should check the type size using a standard device for measuring type size, rather than relying on the font selected for a particular word processing/printer combination. The type size used must conform to all three requirements. Small type size makes it difficult for reviewers to read the application; consequently, the use of small type will be grounds for the Institute to return the application without peer review.

Adherence to type size and line spacing requirements is necessary so that no applicant will have an unfair advantage, by using small type or by providing more text in their applications. **Note, these requirements apply to the PDF file as submitted**. As a practical matter, applicants who use a 12 point Times New Roman font without compressing, kerning, condensing or other alterations typically meet these requirements.

Figures, charts, tables, and figure legends may be in a smaller type size but must be readily legible.

d. Graphs, diagrams, tables

Applicants must use only black and white in graphs, diagrams, tables, and charts. The application must contain only material that reproduces well when photocopied in black and white.

C. Project Summary/Abstract

a. Submission

The project summary/abstract will be submitted as a .PDF attachment.

b. Page limitations and format requirements

The project summary/abstract is limited to 1 single-spaced page and must adhere to the margin, format, and font size requirements above.

c. Content

The project summary/abstract should include:

(1) Title of the project;
(2) The RFA topic and goal under which the applicant is applying (e.g., Teacher Quality, Goal 2);
(3) Brief description of the purpose (e.g., to develop and document the feasibility of an intervention);
(4) Brief description of the setting in which the research will be conducted (e.g., rural school districts in Alabama);
(5) Brief description of the population(s) from which the participants of the study(ies) will be sampled (age groups, race/ethnicity, SES);
(6) If applicable, brief description of the intervention or assessment to be developed or evaluated or validated;

(7) If applicable, brief description of the control or comparison condition (e.g., what will participants in the control condition experience);
(8) Brief description of the primary research method;
(9) If applicable, brief description of measures and key outcomes; and
(10) If applicable, brief description of the data analytic strategy.

Please see the website http://ies.ed.gov/ncser/projects/ for examples of project summaries/abstracts.

D. Project Narrative

a. Submission

The project narrative will be submitted as a .PDF attachment.

b. Page limitations and format requirements

The project narrative is limited to **25 single-spaced pages** for all applicants. The 25-page limit for the project narrative does not include any of the SF 424 forms, the one-page summary/abstract, the appendices, research on human subjects information, bibliography and references cited, biographical sketches of senior/key personnel, narrative budget justification, subaward budget information or certifications and assurances.

Reviewers are able to conduct the highest quality review when applications are concise and easy to read, with pages numbered consecutively.

c. Format for citing references in text

To ensure that all applicants have the same amount of available space in which to describe their projects in the project narrative, applicants should use the author-date style of citation (e.g., James, 2004), such as that described in the *Publication Manual of the American Psychological Association, 5th Ed.* (American Psychological Association, 2001).

d. Content

Incorporating the requirements outlined under Part III Requirements of the Proposed Research, and the requirements listed under the relevant research grant topic, the *project narrative* provides the majority of the information on which reviewers will evaluate the proposal.

The project narrative must include four sections: (a) Significance, (b) Research Plan, (c) Personnel, and (d) Resources. Information to be included in each of these sections is detailed in **Part III Requirements of the Proposed Research** and in specific requirements subsections for each research topic in **Part II Research Grant Topics**.

E. Bibliography and References Cited

a. Submission

The section will be submitted as a .PDF attachment.

b. Page limitations and format requirements

There are no limitations to the number of pages in the bibliography. The bibliography must adhere to the margin, format, and font size requirements described in section IV.23.B. General Format Requirements.

c. Content

Applicants should include complete citations, including the names of all authors (in the same sequence in which they appear in the publication), titles (e.g., article and journal, chapter and book, book), page numbers, and year of publication for literature cited in the research narrative.

F. Biographical Sketches of Senior/Key Personnel

a. Submission

The section will be submitted as a .PDF attachment.

b. Page limitations and format requirements

A biographical sketch should be provided for the principal investigator and other key personnel. **Each biographical sketch (e.g., abbreviated curriculum vitae) is limited to 4 pages**. The biographical sketch must adhere to the margin, format, and font size requirements described in section IV.23.B. General Format Requirements.

c. Content

Each biographical sketch should include information sufficient to demonstrate that personnel possess training and expertise commensurate with their duties (e.g., publications, grants, relevant research experience) and have adequate time devoted to the project to carry out their duties. Applicants are reminded to review information in Section 18 Designation of Principal Investigator.

d. List of current and pending grants

Applicants should provide a list of all current and pending grants along with the proportion of the individual's time allocated to each project for the principal investigator and other key personnel for the project. This information is to be provided as a table attached to the biographical sketch (i.e., a fifth page).

G. Narrative Budget Justification

a. Submission

The section will be submitted as a .PDF attachment.

b. Page limitations and format requirements

There are no page limitations for the narrative budget justification. The narrative budget justification must adhere to the margin, format, and font size requirements described in section IV.23.B. General Format Requirements.

c. Content

The narrative budget justification should provide sufficient detail to allow reviewers to judge whether reasonable costs have been attributed to the project. The budget justification should correspond to the itemized breakdown of project costs that is provided in the Research & Related Budget (SF 424) Sections A & B; C, D, &E; and F-K. It should include the time commitments and brief descriptions of the responsibilities of key personnel. For consultants, the narrative should include the number of days of anticipated consultation, the expected rate of compensation, travel, per diem, and other related costs. A justification for equipment purchase, supplies, travel and other related project costs should also be provided in the budget narrative for each project year outlined in the Research & Related Budget (SF 424).

For those applications that include a subaward(s) for work conducted at collaborating institutions, the narrative should also provide the details about the subaward(s). Include the actual subaward budgets as a separate attachment. (See below "Subaward Budget".)

d. Indirect cost rate

Applicants should use their institution's federal indirect cost rate and use the off-campus indirect cost rate where appropriate (see instructions under section IV.19 Special Requirements). If less than 75 percent of total indirect costs are based on application of the off-campus rate, the applicant should provide a detailed justification.

H. Subaward Budget

a. Submission

The section will be submitted as a .PDF attachment.

b. Page limitations and format requirements

To allow applicants to enter subaward budget information in accordance with a prescribed format (R&R Subaward Budget), an Excel spreadsheet will be provided at:

http://ies.ed.gov/funding/

Applicants will download and complete the spreadsheet in Excel format, convert it to a .PDF file, and then upload it as an attachment. There are no page limitations to the spreadsheet.

c. Content

For applications that include a subaward(s) for work conducted at collaborating institutions, applicants must submit an itemized budget spreadsheet for each subaward for each project year. As noted above, the details of the subaward costs should be included in the Narrative Budget Justification.

I. Appendix A

a. Submission

Appendix A should be included at the end of the Project Narrative and submitted as part of the same .PDF attachment.

b. Page limitations and format requirements

Appendix A is limited to 15 pages. It must adhere to the margin, format, and font size requirements described in section 23.B. General Format Requirements.

c. Content

(i) Purpose.

The purpose of Appendix A is to allow the applicant to include any figures, charts, or tables that supplement the research text, examples of measures to be used in the project, and letters of agreement from partners (e.g., schools) and consultants. In addition, in the case of a resubmission, the applicant may use up to 3 pages of the appendix to describe the ways in which the revised proposal is responsive to prior reviewer feedback. These are the only materials that may be included in Appendix A; all other materials will be removed prior to review of the application. Narrative text related to any aspect of the project (e.g., descriptions of the proposed sample, the design of the study, or previous research conducted by the applicant) must be included in the research narrative.

(ii) Letters of agreement.

Letters of agreement should include enough information to make it clear that the author of the letter understands the nature of the commitment of time, space, and resources to the research project that will be required if the application is funded. The Institute recognizes that some applicants may have more letters of agreement than will be accommodated by the 15-page limit. In such instances, applicants should include the most important letters of agreement and may list the letters of agreement that are not included in the application due to page limitations.

J. Appendix B (OPTIONAL)

a. Submission

If applicable, Appendix B should be included at the end of the Project Narrative, following Appendix A, and submitted as part of the same .PDF attachment.

b. Page limitations and format requirements

The appendix is limited to 10 pages. The Appendix B must adhere to the margin, format, and font size requirements described in section IV.23.B. General Format Requirements.

c. Content

Appendix B applies to applications under all topics in this RFA. The purpose of Appendix B is to allow applicants who are proposing to develop, evaluate, or validate an intervention or assessment to include examples of curriculum material, computer screens, test items, or other materials used in the intervention or assessment. These are the only materials that may be included in Appendix B; all other materials will be removed prior to review of the application. Narrative text related to the intervention (e.g., descriptions of research that supports the use of the intervention/assessment, the theoretical rationale for the intervention/assessment, or details regarding the implementation or use of the intervention/assessment) must be included in the 25-page research narrative.

K. Research on Human Subjects

a. Submission

This section will be submitted as a .PDF attachment.

b. Requirements

If an applicant proposes research activities involving human subjects at any time during the proposed project period, either at the applicant organization or at any other performance site or collaborating institution, then the applicant must provide either a human subjects "exempt research narrative" or a "nonexempt research narrative" and upload this narrative as instructed in the ***Fiscal Year 2009 Application Package Highlights***. See the U.S. Department of Education's web page for detailed information about the protection of human subjects in research: http://www.ed.gov/policy/fund/guid/humansub/overview.html.

L. Additional Forms

Please note that applicants selected for funding will be required to submit the following certifications and assurances before a grant is issued:

(1) SF 424B-Assurances-Non-Construction Programs
(2) Grants.gov Lobbying Form
(3) SF-LLL (if applicable) - Disclosure of Lobbying Activities
(4) Protection of Human Research Subjects assurance and/or Institutional Review Board certification, as appropriate*

*Refer to the Fiscal Year 2009 Application Package for New Grants, available on http://www.Grants.gov, which details the information about the Human Subjects narrative, if applicable, that is required to be submitted with the application.

24. APPLICATION PROCESSING

Applications must be received by **4:30 pm, Washington, D.C. time** on the application deadline date listed in the heading of this request for applications. Upon receipt, each application will be reviewed for completeness and for responsiveness to this request for applications. Applications that do not address specific requirements of this request will be returned to the applicants without further consideration.

25. PEER REVIEW PROCESS

Applications that are compliant and responsive to this request will be evaluated for scientific and technical merit. Reviews will be conducted in accordance with the review criteria stated below by a panel of scientists who have substantive and methodological expertise appropriate to the program of research and request for applications.

Each application will be assigned to one of the Institute's scientific review panels. At least two primary reviewers will complete written evaluations of the application, identifying strengths and weaknesses related to each of the review criteria. Primary reviewers will independently assign a score for each criterion, as well as an overall score, for each application they review. Based on the overall scores assigned by primary

reviewers, an average overall score for each application will be calculated and a preliminary rank order of applications will be prepared before the full peer review panel convenes to complete the review of applications.

The full panel will consider and score only those applications deemed to be the most competitive and to have the highest merit, as reflected by the preliminary rank order. A panel member may nominate for consideration by the full panel any proposal that he or she believes merits full panel review but would not have been included in the full panel meeting based on its preliminary rank order.

26. REVIEW CRITERIA FOR SCIENTIFIC MERIT

The purpose of Institute-supported research is to contribute to the solution of education problems and to provide reliable information about the education practices that support learning and improve academic achievement and access to education for all students. Reviewers for all applications will be expected to assess the following aspects of an application in order to judge the likelihood that the proposed research will have a substantial impact on the pursuit of that goal. Information pertinent to each of these criteria is also described above in Part III Requirements of the Proposed Research and in the section of the relevant research grant topic.

A. Significance

Does the applicant provide a compelling rationale for the significance of the project as defined in Significance of Project section for the Goal under which the applicant is submitting the proposal?

B. Research Plan

Does the applicant meet the requirements described in the methodological requirements section for the Goal under which the applicant is submitting the proposal?

C. Personnel

Does the description of the personnel make it apparent that the principal investigator, project director, and other key personnel possess appropriate training and experience and will commit sufficient time to competently implement the proposed research?

D. Resources

Does the applicant have the facilities, equipment, supplies, and other resources required to support the proposed activities? Do the commitments of each partner show support for the implementation and success of the project?

27. RECEIPT AND START DATE SCHEDULE

A. Letter of Intent Receipt Dates:

Summer Application Letter of Intent	April 28, 2008
Fall Application Letter of Intent	July 10, 2008

B. Application Deadline Dates:

Summer Application Deadline Date	June 26, 2008
Fall Application Deadline Date	October 2, 2008

C. Earliest Anticipated Start Date:

For Summer Application	March 1, 2009
For Fall Application	July 1, 2009

28. AWARD DECISIONS

The following will be considered in making award decisions:

- Scientific merit as determined by peer review
- Responsiveness to the requirements of this request
- Performance and use of funds under a previous Federal award
- Contribution to the overall program of research described in this request
- Availability of funds

29. INQUIRIES MAY BE SENT TO:

A. Early Intervention and Early Childhood Special Education

Dr. Kristen Lauer
Institute of Education Sciences
555 New Jersey Avenue, NW
Washington, DC 20208

Email: Kristen.Lauer@ed.gov
Telephone: (202) 219-0377

B. Reading, Writing, and Language Development

Dr. Erin Caffrey
Institute of Education Sciences
555 New Jersey Avenue, NW
Washington, DC 20208

Email: Erin.Caffrey@ed.gov
Telephone: (202) 219-2126

C. Mathematics and Science Education

Dr. David Malouf
Institute of Education Sciences
555 New Jersey Avenue, NW
Washington, DC 20208

Email: David.Malouf@ed.gov
Telephone: (202) 219-1309

D. Social and Behavioral Outcomes to Support Learning

Dr. Jacquelyn Buckley
Institute of Education Sciences
555 New Jersey Avenue, NW
Washington, DC 20208

Email: Jacquelyn.Buckley@ed.gov
Telephone: (202) 219-2130

E. Transition Outcomes for Special Education Secondary Students

Dr. Jacquelyn Buckley
Institute of Education Sciences
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30. PROGRAM AUTHORITY

20 U.S.C. 9501 et seq., the "Education Sciences Reform Act of 2002," Title I of Public Law 107-279, November 5, 2002. This program is not subject to the intergovernmental review requirements of Executive Order 12372.

31. APPLICABLE REGULATIONS

The Education Department General Administrative Regulations (EDGAR) in 34 CFR parts 74, 77, 80, 81, 82, 84, 85, 86 (part 86 applies only to institutions of higher education), 97, 98, and 99. In addition 34 CFR part 75 is applicable, except for the provisions in 34 CFR 75.100, 75.101(b), 75.102, 75.103, 75.105, 75.109(a), 75.200, 75.201, 75.209, 75.210, 75.211, 75.217, 75.219, 75.220, 75.221, 75.222, and 75.230.

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